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## ORIGINAL ARTICLES.

### FURTHER NOTES UPON THE DIAGNOSTIC TEST OF TUBERCULIN.<sup>1</sup>

BY EDWARD O. OTIS, M.D.,  
OF BOSTON.

At the meeting of this Association in 1899 I presented a series of tuberculin tests, published in the Transactions of that year. I have now to present sixty-two additional tests undertaken with two objects in view, namely, (1) to

so obtained are reliable, and such also was the experience of Dr. R. C. Cabot, who pursued a similar course in his series of tests referred to in my previous paper.<sup>2</sup> Fränkel has also recently declared that the test could be satisfactorily made under these circumstances.

In none of the cases herewith reported were there any serious or alarming symptoms as a result of the injection, so that I am still further confirmed in my opinion previously expressed, that no injurious results follow the diagnostic test of tuberculin in doses up to ten milligrams.

TUBERCULIN TEST IN SYPHILIS. TABLE I.

No.	Condition and Stage.	Sex.	Age.	Temp.	Pulse.	Dose in mg's.	Result.	Temp. at reactive epoch.
1	Syphilis; early stage	M.	23	98.6	102	5	No reaction	97.2
2	" pustular syphilide on skin	F.	20	99.3	88	2	" "	98.4
3	Late syphilis; tubercular syphilide	F.	37	99.1	76	2	" "	99.5
4	Syphilis; no active manifestations	M.	28	98.5	72	8	" "	98.4
5	" few small papules in brows	M.	34	98.7	100	8	" "	99.2
6	" early secondary	M.	29	99.4	80	5	" "	98.4
7	Early syphilis	M.	30	99.	88	5	" "	102.5
8	" abundant eruption	F.	19	99.8	120	5	Reaction	99.
9	Syphilis; late manifestations	F.	29	99.9	96	2	No reaction	99.
10	" old; no acute manifestations for several months	F.	29	98.8	96	2	Abortive reaction	99.8
11	Probable syphilitic lesion on cheek	M.	9	99.	86	2	No reaction	99.
12	Early syphilis; abundant eruption on body	M.	28	98.2	88	5	" "	104.
13	Syphilis of years duration	F.	23	98.4	96	3	Reaction	98.4
14	Early syphilis	F.	40	99.6	96	5	No reaction	99.2
15	" "	F.	22	98.9	100	5	" "	96.3
16	" "	F.	21	98.3	92	5	" "	98.9
17	" " mucous patches	M.	18	97.8	80	5	" "	99.7
18	" "	M.	.....	99.4	92	5	Abortive reaction	99.
19	Late syphilis; gummatous lesion	M.	.....	99.	80	5	No reaction	99.5
20	Early syphilis; mucous patches	M.	.....	97.4	76	5	Abortive reaction	100.6
21	" initial sore on chin	M.	.....	98.	78	5	Moderate reaction	99.5
22	Late syphilis	M.	27	98.1	64	5	No reaction	99.2
23	" "	F.	20	99.2	92	5	" "	99.3
24	" "	F.	43	98.6	76	5	" "	100.2
25	Early syphilis	F.	31	99.6	104	5	Reaction	101.3
26	Late "	M.	37	98.4	88	10	" "	100.8
27	Early "	M.	28	99.	72	10	" "	99.
28	" "	M.	28	98.2	76	10	Abortive reaction	98.4
29	Late "	M.	46	98.	96	10	No reaction	99.8
30	Early "	M.	38	98.4	80	10	" "	99.4
31	" "	M.	29	99.	108	10	" "	99.
32	" "	M.	39	98.4	72	10	" "	99.2
33	" "	F.	25	99.4	96	5	" "	98.5
34	" "	F.	20	98.4	88	5	" "	100.
35	" "	F.	37	99.1	78	5	Abortive reaction	99.5
36	" "	F.	43	99.4	108	7	No reaction	99.5

determine how many cases of known syphilis react to tuberculin, and (2) to determine how reliable the test is in suspected or incipient tuberculosis both of the lungs and of other organs or portions of the body. The tuberculin used was Koch's original, imported and diluted as used to a one-per-cent. solution, one-tenth of a cubic centimeter of which solution being one milligram of the original product. The patients were those of an ambulatory clinic, but from former experience I have learned that results

There was invariably a little soreness complained of at the point of injection for one or two days following. In most cases the general reaction only was depended upon, but I am inclined to think that there are some few cases of tuberculosis which, for some reason or other, do not give any general reaction, but do give a marked and definite local one, as in No. 4. The dose was two, five, seven, or ten milligrams, never over ten. All the cases were practically afebrile at the time of the injection.

<sup>1</sup> Read before the American Climatological Association, at Niagara Falls, May 30, 1901.

<sup>2</sup> "Polikliniken für Lungenkranke," Zeitschrift für Tuberkulose und Heilstättenwesen, April, 1901.

If from six to twenty-four hours after the injection there was a rise of temperature and the patient complained of marked weakness, sensations of heat and cold, nausea or anorexia, pain in the back and limbs, headache, sweating, either sleeplessness or somnolence, a general "miserable" feeling, a reaction was considered to have taken place. I do not think that any special temperature can in itself be relied upon without some or all of these other symptoms. Sometimes a slight rise of temperature was accompanied by marked constitutional disturbance. Each patient was given a thermometer to take home and requested to hold it under the tongue for five minutes at six o'clock at night, upon going to bed and in the morning on getting up, and then to

amount of tuberculin used was two milligrams, the largest ten milligrams. There were six undoubted reactions and five what I have called abortive reactions, in which there were temporary symptoms of a reactive nature, but which I do not think could be called genuine reactions. Considering only the six undoubted reactions we have 17 per cent. of reactions; including the abortive cases, we have 31 per cent.

In the discussion upon Dr. J. M. Anders' paper upon "The Value of the Tuberculin Test in the Diagnosis of Pulmonary Tuberculosis," presented to this Association last year, Dr. Baldwin quoted Beck as showing in his experiments that about one-half the cases of syphilis in which he used the injections reacted to tuberculin. My

TUBERCULIN TEST IN SUSPECTED OR PROVED TUBERCULOSIS. TABLE II.

No.	Condition.	Sex.	Age.	Temp.	Pulse.	Dose in mg's.	Result.	Temp. at reactive epoch.
1	Suspected tuberculosis of urinary passages.....	M.	40	99.	74	5	No reaction.....	98.4
2	Suppurating cervical glands, both sides; dulness over left apex.....	F.	20	99.5	112	2	Reaction.....	103.
3	Cough, slight dulness in right back.....	F.	23	99.8	100	2	No reaction.....	97.
4	Dulness above and below left clavicle; moist râles; t. b. in sputum.....	M.	52	99.4	100	2, 5, 8	No general reaction. Marked local reaction with 8 mg.	99.8
5	Dulness over right apex, bronchial resp.; few moist râles on cough.....	M.	39	99.2	68	5, 8	No reaction.....	96.
6	Suspected renal tuberculosis.....	M.	19	98.4	64	5	" ".....	98.4
7	Fine moist râles below left clavicle; diminished resonance, prolonged exp.; t. b. in sputum.....	F.	38	98.6	81	7	" ".....	99.6
8	Dulness left axilla, few moist râles on deep inspiration.....	M.	28	97.8	62	10	" ".....	99.6
9	Suspected renal tuberculosis.....	M.	36	98.8	80	5	" ".....	99.5
10	Moist râles at both apices.....	M.	30	98.8	70	8	General and local reaction..	101.3
11	Suspected tuberculosis of wrist.....	F.	40	98.6	74	5	No reaction.....	98.4
12	Suspected tubercular laryngitis.....	F.	23	100.	99	5	" ".....	99.8
13	Lupus of face.....	F.	29	99.	114	5	General and local reaction..	101.2
14	Suspected tuberculosis of anus.....	M.	50	98.8	80	5	No reaction.....	98.4
15	Dulness at right apex.....	M.	42	98.4	80	10	" ".....	98.4
16	Suspected tubercular epididymitis.....	M.	30	99.5	90	10	" ".....	98.4
17	General tuberculous condition; few fine moist râles above spine of scapular in left lung.....	M.	41	100.2	100	5	Reaction.....	102.1
18	General evidence of tuberculosis; a few dry râles below left clavicle; harsh respiration.....	M.	39	99.6	105	7	" ".....	101.2
19	Suspected tuberculosis of finger and hand.....	M.	3	99.8	110	1	No reaction.....	98.
20	Dulness above and below left clavicle; fine râles after cough; harsh respiration.....	M.	.....	98.3	72	7	" ".....	97.1
21	Syphilis or tuberculous laryngitis.....	F.	16	99.1	104	2	Reaction.....	100.2
22	Suspected tuberculous laryngitis.....	M.	56	97.5	72	5, 10	Abortive general reaction, local reaction.....	98.
23	Suspected tuberculosis of septum of nose.....	F.	40	97.7	88	5	General and local reaction..	101.7
24	Few fine moist râles at left apex.....	M.	52	98.7	90	10	Reaction.....	103.
25	Dulness over both apices, moist râles, consolidation on right side; t. b. in sputum; fistula in ano.....	F.	22	99.2	112	3, 10	No reaction.....	98.6
26	Possible tuberculous infection at the right apex....	M.	39	98.2	72	10	" ".....	98.

report the following forenoon. In this way the maximum temperature was obtained at whichever of these three periods it occurred. As the class of patients were more or less ignorant, no attempt was made to teach them how to read the thermometer, the plan just stated was considered a surer, as it was a simpler, one.

The diagnosis of syphilis was carefully made by Dr. C. M. Smith of the Skin and Syphilis Department of the Boston Dispensary, and I desire here to express my thanks to him for so kindly furnishing me with the material for these tests.

First, I present thirty-six cases of the tuberculin test in syphilis or, throwing out No. 11, the only doubtful case, thirty-five. The smallest

cases give a much smaller number, only about one-sixth or at most less than one-third. From my experience I cannot think that, however large the number of cases experimented upon, as large a proportion as one-half, or anything near that number, would react. Still, in using the tuberculin test we must always bear in mind the fact that syphilis at whatever stage does give a reaction. Further, there does not seem to be any guide in the activity or quiescence of the syphilitic infection, as to whether or not a reaction is likely to occur. In the most violent reaction I had, in which the temperature went up to 104° F., the case was one of many years' duration and with no active manifestations.

Second, I have twenty-six cases of suspected or proved tuberculosis which give some interesting and perplexing results. Taking the eight cases in which the physical examination showed sufficient evidence of tuberculosis or in which tubercle bacilli were found in the sputum, we have four reactions and four failures to react. In the three cases in which tubercle bacilli were found in the sputum, two did not react; in one 7 milligrams were used, and in the other 5 and 10 milligrams. In the third case in which 2, 5, and 8 milligrams of tuberculin were successively used, only a local reaction was obtained. I have no explanation to offer for these unexpected and disappointing results. Of the remaining eighteen cases of suspected tuberculosis, there were six reactions and twelve failures to react. In no one of those cases which failed to react could tuberculosis be more than suspected, with greater or less probability, by the physical examination. The case of lupus of the face besides giving a general reaction showed a very pretty local one. In a case of chronic laryngitis in which either syphilis or tuberculosis might have been the cause, a reaction was obtained, thus leaving the origin doubtful as before. In using the tuberculin test for suspected tuberculosis, experience would teach us to look carefully for syphilis.

"One swallow does not make a summer," nor should one be discouraged by a few failures, yet I must confess that when a case of tuberculosis not far beyond the incipient stage, with tubercle bacilli in the sputum, fails to react, one's confidence in the test is temporarily at least a little shaken, but it is well to bear in mind that in all such investigations as the above there is always a chance of error, and as yet we do not know what the minimum efficient dose is, and not unlikely it may vary for each individual. One thing I feel sure of—that up to ten milligrams, there is no injurious result to be feared.

#### A STUDY OF BURNS, WITH A PLEA FOR THEIR MORE RATIONAL TREATMENT.

BY FREDERIC GRIFFITH, M.D.,

OF NEW YORK;

SURGEON, BELLEVUE DISPENSARY; FELLOW OF THE NEW YORK ACADEMY OF MEDICINE.

THIS article is written to arouse interest in a class of surgical injuries which the writer believes are neglected.

The reaction of the body to high degrees of heat in the form of flame or molten metal, boiling fluid, escharotics or electricity, resulting in injuries varying in severity, is the cause of their desultory treatment.

Burns and scalds are the commonest injuries of the body and Holmes ranks them as the most commonly fatal; Cheever of Harvard state that more than three-fourths of all burns occur in children; this I consider too sweeping a statement, although that of one-third to one-half of all deaths given as occurring in the young may well be accepted: A burned child has less vitality to

combat such injuries than a grown person and will, therefore, more often succumb.

Of predisposing causes winter months and occupations are foremost in importance. Workers in rolling-mills, blast-furnaces, oil-refineries and coal mines are particularly exposed. In the south, where sugar boiling is carried on extensively and in the turpentine camps many burns result. In large cities where steam laundries are common a peculiarly distressing form of burn occurs. The ironing machine consists of two rolls superimposed; the upper one cold the lower one hot. A common accident is for the "feeder's" fingers to be drawn between the revolving rollers resulting in a crush and a burn of the hand; the burned area being always upon the flexor surfaces of the fingers and palm.

In the arts and trades where escharotic acids and alkalies are used many burns result which are notable for tenacious eschar formation. Electricity, finally, must be added as a common source of burned wounds. They are characterized by death and instantaneous formation due to the intensity of the heat. The wounds present a clean-cut edge, with no redness, and become covered with a brownish eschar; owing to the depth, healing is slow and the scars left are very plain. Hutchinson reports a case in which a very severe electric burn occurred in an individual of such rapid formation that the clothing was not scorched. In this connection so-called burns following X-ray examinations may be mentioned. Prof. Roentgen's dogma that the X-ray is non-calorific has not been disproven.<sup>1</sup> Any case of burn which has resulted from the use of this latest and greatest appliance of electricity to medical science has been due to the heavy electric currents employed in the generation of the X-ray and not to the X-ray itself.

Burns of the throat and nasopharynx are common and always of serious import. Scalding from hot vapors or fluids, when severe cause rapid edema of the mouth, nasopharynx and the larynx as low down as the vocal cords, followed by a gradually increasing dyspnea, until asphyxiation causes death. Cases which are stated to have died from inhalation of flame have really been asphyxiated by smoke, noxious gases of combustion or mechanically suffocated by direct action of the flame. The presence of carbonaceous matter in the mucus contained in the larynx and trachea proves the inhalation of smoke. In such cases the blood is found of a bright red color, as are all the viscera, with large quantities of bloody fluid sometimes found in the arachnoid spaces, death having been caused by carbon-diox-

<sup>1</sup> Recently William Roelins sought to show that the X-ray does produce heat effects. A strong male guinea-pig, placed in a grounded Faraday chamber and exposed to the X-ray two hours daily, died upon the eleventh day of the experiment. A second guinea-pig died on the eighth day after a like exposure. In neither instance were external burns found. From the results of these two experiments Rollins considers that there is an ever-present danger in the use of the X-ray. He advises the physicians to wear glasses of the most non-radiable material that is transparent when using the fluoroscope. For the better protection of the patient he would have the X-ray tube covered by non-radiable box from which no X-rays escape, excepting the cone of rays which covers the area to be examined or photographed. The patient should be covered by similar material excepting only the necessary area for examination.



ide poisoning. When in addition the blood is found fluid, high heat has been present. The quickness with which death comes after burns of these parts is well shown by the history of a case reported by Dr. Cleaves of a strong young man who inhaled powdered lime. The symptoms began with coughing and violent pain coming on almost immediately and requiring opiates to subdue. The throat and mouth became edematous, congestion of both lungs took place, moist râles being heard all over the chest. Diarrhea and delirium, with a temperature of 104.5° F., came on with death at the end of 48 hours. Dr. Cleaves thought that the lung congestion was due to a progressive inflammation beginning in the throat, lime particles not entering the bronchi.

E. Schmidt in his report of a case shows the rapidity of action of a scald of these parts in a child, aged three years, who tried to drink from a long-spouted, boiling tea-kettle. The child died next day from paralysis of the heart, following a left-sided pneumonia. Upon postmortem examination the mouth and pharynx were found normal, due to the length of the spout, compelling the child to throw his head back for suction. The entrance of the steam or boiling fluid caused an attempt to scream which demanded a deep inspiration of air and the hot fluid. The epiglottis was thickened and the mucous membrane covering it necrotic. Upon the ridge of the larynx where it joined the esophagus a crescentic necrosed area was found.

According to Dr. Posey lime burns are the most common and the most severe of burns of the eye. The danger lies in the quick chemical change which takes place, accompanied by high heat.

Burns about the mouth, eyelids and the neck are important from the amount of deformity which occurs due to the contraction of the healing wounds. Where the eyelids especially are involved in the cicatricial tissue, eversion or drawing of the lids and displacement of the lacrimal canaliculi occur. This allows the tears to run down over the cheeks because of a continuous conjunctival inflammation due to dust particles which find an easy entrance to the sac. When the mouth is drawn, constant dribbling of saliva and impediment to speech follow as a consequence. Hot liquids, alkalies, and acids swallowed commonly result in esophageal constriction, with accompanying contractions of the stomach if disintegration of that organ does not at once occur as a result of the direct action of the heat agent.

Burns occurring over the large joints, serous cavities or the bladder, are especially capable of producing great internal reaction as the internal organs must take on the extra work of the destroyed skin. Serous inflammation is more common than mucous inflammation after burns and Heath points out that a burn over the front of the body is more serious than one over the back. The extent of area is also more important than the depth of the injury; Druitt observes that extensive

burns even of small severity are always dangerous. A burn over the belly is often followed by peritonitis or enteritis; Dr. Smith has reported the case of a woman burned upon the abdomen over an area of five by seven inches. Symptoms of peritonitis developed, and suppression of urine occurred. There was no movement of the bowels for a period of eight days. At the end of this time the wound became perfectly clean and at once all untoward symptoms passed away.

Burns over various parts of the body have at times caused abortion, also placenta previa as a result of the nervous shock; one case being reported of a woman burned over her belly, who was in the seventh month of pregnancy, at the time of the accident; on the fourth day acute peritonitis set in lasting four days; upon the eighth day, when the woman had nearly recovered from the inflammatory complication, labor set in and in seven hours she gave birth to a dead child. Upon examination bullæ were found upon the fetus.

Dr. S. P. Crawford reports a markedly similar case:

Inflammation of the lungs, pleuræ or bronchi following burns of the chest are common.

Brush burns and grazing missile wounds are often very like direct heat injuries; Mr. Horman says of the latter that they give an appearance to the skin as if it had been burnt by a hot iron rod. This is due to the removal of the superficial epiderm which exposes the true skin which turns brown after a few hours.

A peculiar complication resulting after a burn occurred in a patient of Dr. West's. A man, intoxicated, in falling, set fire to some fuses in his pocket and was burned over the lower part of the abdomen, the genitals and thighs as low down as the knees. The patient recovered, but with an extreme condition of phimosis.

A case of tetanus is reported by Dr. Godfrey as occurring in a man burned with phosphorus over the chest, hands and groin; symptoms began on the tenth day, with death in forty-two hours.

Fenwick speaks of a tendency to scarlet fever in children after burns. Two cases out of every eight observed by him developed the rash, throat, tongue and temperature symptoms of scarlet fever on or about the fourth day.

The commonly accepted designation of the severity of burns is that of Dupuytren, who made an anatomical classification of six degrees. Some surgeons, as Stephen Smith, Heath, Keen, Warren and White, make but three divisions, differing from him in that the burns of a severe type are grouped as one; while Gross divided them into complicated and uncomplicated, believing that it is owing to the many divisions into degrees of severity that so many forms of treatment exist (Holmes states that the treatment of burns is a subject upon which many books have been written and perhaps more numerous remedies recommended than in any other branch of surgery) and that by simplifying their description,



surgeons would become more uniform in their treatment.

I would divide burns into two classes, (1) all those which affect the skin, from slight inflammatory reaction following a scorch to destruction of the true skin; (2) all others, thus making involvement of the true skin the dividing line. The two classes may occur on the same person due to the difference in temperature toward the edges of the agent producing them.

The reaction of tissues to burns varies from the faintest browning of the glow of redness from a flame scorch, to black carbonization of the parts.

The variable effects constitutionally may be shown by a description of two contrasting cases which I saw in the Pennsylvania Hospital. A young woman was brought in burned over her whole body, excepting the palms of her hands which she had clenched. The burn was very superficial; her eyebrows, eyelashes and hair were but singed and over her body the burn extended no deeper than the epiderm. The woman in her night dress had upset a lighted lamp on the bed-clothes and though but a flash of flame thus momentarily enveloped her as she sprang from the bed, she died within four hours, shrieking her agony until subdued by morphine. The other case was that of a similarly caused accident to a man confined to bed with a rheumatic attack. He was deeply burned through the skin, subcutaneous tissue and fascia over his back from shoulders to buttocks. The whole sloughed looked not unlike a great sheet of lichen bark from an old tree. This man did well, was kept in bed but a few days, and then was able to walk to the clinic to be dressed, and went on to uninterrupted recovery.

The pathology of burns is the pathology of inflammation of the part locally affected, with almost all the morbid changes possible in the complications arising therefrom. A severe burn can open the way to the onset of many diseases, both medical and surgical, each fatal to life. From the grasp of the demoralizing fright of the moment of contact of the destroying element through the subsequent period of shock, followed by febrile action, internal congestion of brain, lungs or other organs, during the reactive period, burns may prove fatal at any time. Later, death may come from secondary hemorrhage, perforation of a duodenal ulcer, exhausting diarrheas or suppuration, disintegrating blood changes with absorption, causing pyemia, septicemia and embolism; also secondary parenchymatous inflammation of the kidney, with uremic poisoning and amyloid degeneration of the liver, spleen, kidney, and gastro-intestinal tract. Incidentally from without, erysipelas or tetanus developing may cause a fatal issue. Where life is not endangered, the local effects of ulceration, cellulitis, abscess, sloughing and gangrene, causing deforming contractions with loss of function, overgrowth of scars, sometimes involving nerves in the meshes of the fibrous tissue and slow healing ulcers, all handicap,

thus giving this form of injury an importance which surgeons are prone to disregard.

The first action of heat is to stimulate sensory and paralyze vaso-motor nerve filaments, causing pain and hyperemia. This reaction may be instantaneously lost in severe burns as a result of loss of conduction where nerve trunks are involved, so that deep burns are less painful than superficial. This is well shown in the case reported of a foundryman who stepped one foot in a puddling-pot of molten metal with the result of complete solution of the member; he, however, suffered no pain. In a slight burn this stimulation causes an outpouring of fluid from the papillary loops of the capillaries in the corium. This bulges up the epiderm and forms vesications or blisters. Moist heat is more stimulating than dry, Neumann having found that moist heat from 167° F. will cause vesication, while 212° F. and over will destroy the skin in part or entirely. Much higher temperatures than these may be withstood if the heat and the portion of the body to which it is applied be dry, as illustrated in treatment by the application of dry hot air in certain cases to 400° F. or even 420° F.

The fluid contents of blebs or vesications is not serum, but serum plus fibrin ferment which in a few days if left alone causes an albuminous coagulation. The formation of this fibrin ferment is the cause of a rise in the body temperature and Horrocks speaks of a systemic poisoning action (non-bacterial), which develops at the same time.

Fluid and semi-fluid particles may both be absorbed from a burned area although, following the formation of granulations, little absorption takes place. The fibrin-ferment fever in simple inflammation is similar to the first rise in temperature after reaction in burns, not due to early sepsis. Horrocks says that there is first a period of quiescence before this reaction takes place.

Directly after a burn during the period of shock the temperature falls to 97° F. or as low as 95° F.; then rises at reaction to 104° F. or as high as 106° F. That absorption does take place he proves by reference to the action of the thermal cautery. He says we may for illustration divide the area of a scarified wound into three divisions, (1) the part most affected by heat; no water is present and the tissues are carbonized; (2) area of active inflammation; the vessels are plugged with clots and contracted, the lymphatic vessels retracting less than the venous and arterial capillaries on account of having less elastic tissue in them, absorption can readily take place; (3) area of active hyperemia, great diapedesis due to increased blood-supply, making it feel hotter and look redder than natural. Thus, in a simple scarification, we have an example of what occurs after a burn.

The mass of the eschar after a burn may be thrown off in either one of two ways, namely, (1) by a demarking inflammation with but little attending discharge which can be absolutely aseptic. Complete charring forms tar-like products of

distillation, which are naturally unadapted for infection of micro-organisms. The mass shrivels, mummifies and is cast off finally as a dry slough. (2) Infiltration of the slough due to activity of the micro-organisms which lying in the depths of the skin escape the heat's action; or due to those which wander in afterward.

The action on the skin causes it to become a yellowish, greasy pulp or to be thrown off in shreds and layers. A poison develops which belongs to the group neurin and muscarin, derived from cholin; their great virulency is shown by the action of muscarin, 5 milligrams injected causes symptoms of poisoning in a man. Putrefaction goes on, with water formation, the moisture extending into the tissues beneath, where these elaborated poisons are readily taken up and carried into the general system. A rich supply of oxygen favors their development; oxygen being necessary to produce virulent ptomaines.

Deep burns are relatively less dangerous than those superficial burns which produce white eschars. Over a given area a scald or a flame scorch will cause less destruction than does fire, while molten metals burn deepest.

The early visceral changes after severe burns are well shown by Dr. Russel who reported the postmortem findings in the cases of five children who died a few hours after the accident. The liver and kidneys were swollen, spleen enlarged and softened with moderate hyperemia of all the organs. Most striking was the swollen appearance of the lymphatic glands and the gastro-intestinal lymph-follicles. Focal changes about their germinal centers had taken place wherever lymphocytes were found, from the small nodules in Glisson's capsule to the largest lymphatic glands. The germinal center was enlarged so that it could be seen by the unaided eye. The protoplasm of the cells was broken up, while certain endothelial cells in the neighborhood, acting as phagocytes, had taken up the fragments of protoplasm and nuclei. In the blood, fragmentation of the red blood-corpuscles, especially in that taken from the spleen, somewhat less so in the liver, had taken place. In the skin thrombi appeared and in the Malpighian corpuscles the same changes had occurred. Russel explains these various changes by assuming that toxins elaborated by destruction of the superficial layers of the skin pass into the circulation, and when the arteries of the lymphatics break up into capillaries the rapid flow of plasma causes the edematous swelling and tends to sweep the lymphocytes into the pericuticular lymph-sinuses.

Nearly identical changes to these have been found in the lymphatics of children dead of infectious diseases. Frankel and Spiegler implying the same principle in their statement that the fatal effect of burns is due to intoxication from absorption of pathological cleavage products of the body proteids; death being therefore due to an acute toxemia.

That grosser lesions may result from these causes is well shown in a case reported by Dr.

Granges of a boy of eight years who was burned by a redhot coal falling from the fire and rolling over his arms, belly, genitals and legs. Death occurred on the fourth day from a fibrinous clot found in the longitudinal sinus.

Fenwick holds that early death and internal complications after burns are due (1) to alteration in shape and diminution of vital properties of the red blood-corpuscles. Schultze found at a temperature of 54° C. (119° F.) that red blood-cells became shriveled and partly disintegrated, thus losing their power of carrying oxygen when most needed; also an abnormal loss of body heat occurred, due to paralytic dilatation of the blood-vessels and the fact that blood being a good conductor of heat, destruction of the epidermis, a poor conductor, allowing the loss to take place. (2) This fragmentation causes thrombi and stasis in the lungs, kidneys, intestines, liver, brain and subcutaneous cellular tissue. Thrombi are most numerous in the terminal branches of the pulmonary artery and are found during life. This causes obstruction to the emptying of the right ventricle and therefore general arterial stasis with consequent arterial anemia.

These conditions cause hemorrhages. Sometimes cardiac thrombi occur alone, giving rise to precordial pain, irregularity of the pulse, with obstruction of the pulmonic circulation and dyspnea rapidly increasing until death, ulcerations, and parenchymatous changes in various organs. Thus may be explained dyspnea, cyanosis, coma, smallness of the pulse and the various lung affections, convulsions, anemia and fall of body temperature after severe burns. The fatal issue after small burns in children is due to (1) a more intense action of heat upon the corpuscles; (2) weaker resistance, owing to the thinner skins of the corpuscles; finally, the comparative weakness of the heart and circulatory apparatus generally. This is borne out in fact by the report of an examination of a child, two years old, scorched over the upper part of the body, who died comatose after twenty-four hours. At the postmortem there was found congestion of the lungs and the brain membranes; arachnoid fluid in the ventricles, with engorgement of the vena cava and the right heart.

Convulsions are often the symptomatic cause of death in children, owing to their greater nervous susceptibility. When the blood changes come on quickly, excess of function is excited; but when some time has elapsed, structural changes take place.

Erichsen in examining 119 fatal cases of burns found complications affecting the brain in 33 out of 37 examined, complications of the viscera in the chest cavity in 30 out of 40 cases examined and of the abdominal organs in 31 out of 42 cases.

Dr. Jenner has described the postmortem findings in 17 cases of burns, the victims of a tenement fire in London; they were of all ages and of both sexes. Cadaveric rigidity had rapidly taken place and was due to cooking of the mus-



cles with shrinkage after death. This caused extreme flexion, which took great strength to overcome, recurring when pressure was removed. Dr. Jenner thought that in some instances where extreme shortening had taken place, an antemortem convulsive contraction had occurred before fixation by heat coagulation. The claim agent of one of the eastern railroads detailing to me the account of an accident which occurred on his road several years ago in mid-winter, when twenty-two passengers were burned and scalded to death, stated that it was impossible to straighten their flexed and contorted bodies. The jaws were found to be firmly clenched, so tightly in some cases as to cause blood to exude from the tongue. Excepting in a few cases the blood was found fluid in the heart. The liver, spleen and kidneys, all much congested, with dark, venous blood. The bladder was found contracted. The mucus in the nose and throat was of a blackish color, due to smoke and inhaled carbon particles. The lung tissue was of a rosy tint. Burned areas which had occurred after the death of the victim had no red halo surrounding the charred area as did those which caused death. One man was found with bits of plaster in his mouth and throat, with mucus black from carbon: this in connection with the presence of charred burns, without inflammatory halo being found proved conclusively that the man had been smothered by smoke and noxious gases and not burned to death. A medico-legal point of great importance; could be thus settled with ease. In this connection a practical point may not be amiss; firemen are often enabled to go long distances, through smoke and combustion gas filled rooms and halls, by creeping close to the floor, as the heavier uncharged air occupies a space of a foot sometimes as much as two feet above the floor. Bloody fluid was found in the pleural cavity and in the pericardium, though not over half an ounce was found in any one case.

The function of internal organs is to take on the extra work of the destroyed skin after burns; Freund and Russ have shown that the urine of those badly burned contains pyridin which Fraenkel has obtained by decomposing albumose with sulphuric acid; hence it seems possible for heat to cause a similar action in the bodies of patients. These authors have studied the urine in four cases of fatal burns and always found three abnormal constituents. The first is a series of bases of the pyridin type. The second is cysteine or is closely allied to it. The third from its reactions seems to belong to Pavey's group of carbo-hydrate derivatives of proteids. The urine was free from albumin and nucleo-albumin.

The author's theory requires for substitution the artificial preparation of these substances from proteids and the study of their effects upon animals; an important clinical fact seems to be that their presence in the urine is of grave import.

The degree of body temperature seems to be a factor in the production of kidney congestion. This is shown by reports of clinical examination

made daily and systematically over long periods of time, at the Pennsylvania Hospital. It was demonstrated that when the temperature in a given case was below  $101.5^{\circ}$  F. in burns of whatever extent or severity, no albumin was present in the urine. Where kidney congestion is a special complication, albuminuria and hematuria are due to the acute nephritis. Amyloid change in the kidney after long suppuration may alone be the cause of albuminuria. Glycosuria coming on acutely and lasting four weeks is reported in one case after a slight burn.

The course of a burn is of importance to the surgeon from its very inception. He has not only to deal with local wounding, but with a constitutional reaction on the part of the individual injured as well. Under the head of shock are these constitutional manifestations described; and to it must be ascribed the chief cause of early death after burns. According to Shradly shock is a jar to the equilibrium of the entire sympathetic system, of which mere pain is oftentimes an insignificant part. Mitchell, Morehouse and Keen add to this enfeeblement of the heart's action through the mediation of the medulla oblongata and the pneumogastric nerves.

In a group of ten cases of burns occurring at one time, reported by Ashhurst, six died of shock within the first twenty-four hours.

A. E. Durham and Bryant agree that shock kills one-half of all fatal cases of burns. While young people stand shock very well, as do females better than males, infants and nervous women are very susceptible to its influence. The causes of shock are dependent upon the nature and extent of the burned wound. Burns of the chest and belly cause greater shock, other things being equal, than do such injuries of other parts; again, burns cause greater shock than do scalds. In Bartholomew Hospital, during a period of ten years, burns were found more fatal than scalds in the proportion of 26 per cent. to 9 per cent.

Pain, fright and loss of body heat are factors in the production of this condition. Heath believes that shock is kept up so long as there is any pain present, and Sonnenburg states that the sudden irritation of the sensory nerves, so numerous over a burned area, may be followed by paralysis of the heart, which, superadded to overheating of the blood, explains the sudden early death after cases of superficial burn. Lustgarten holds to the theory of intoxication, following burns of cutaneous surfaces when early fatal. Sonnenburg, however, contends that in as much as Lustgarten's cases all had an eschar, death was due to overheating of the blood, with consecutive thrombus formation. The temperature in such cases will rise a few tenths of a degree; there is an interval of cerebral and spinal irritation, followed by symptoms of paralysis and coma, all simulating alkaloid poisoning.

The symptoms of shock do not always appear at once; the period of depression following these injuries is given by most surgeons to be about 48 hours. Fell states that the time for the



appearance of shock may vary from 1 to 48 hours, and during this time the patient may be moved without harm.

During the period of depression the temperature falls and the patient feels cold and shivers; pain is oftentimes continuous. Following this is the period of reaction, lasting at times ten to fourteen days, and characterized by an elevation of temperature and internal congestions. An insatiable thirst is often an accompaniment and when the stomach is unretentive, adds to the dangers of the condition.

Fenwick, speaking of this complication from his experience in London Hospital, says it is an axiom at that institution that if a burn case vomits soon after admission, it will die. Hebra, Sr., and Kaposi, with their great experience in these injuries, state that they never saw a recovery after vomiting had set in. It is during this period that duodenal ulceration occurs; a complication to be more fully dwelt upon later.

Following reaction, the patient passes into what surgeons generally are pleased to call the stage of exhaustion. During this time more or less supuration is taking place, and there is danger of death from exhaustion alone. Extraneous causes, such as erysipelas or tetanus, may be superadded to the suppurative process or to visceral damage. Diarrhea very often appears as the immediate cause of death.

A complication to which Curling, before the middle of the last century, first directed attention is ulceration of the duodenum. He noted that it was common in children and that when it occurred it was dangerous, death being due to hemorrhage, or to perforation and peritonitis. The cause of this lesion according to Curling, was an attempt upon the part of the adenoid tissue in the duodenum to assume the function of the destroyed skin. Since his time, many cases have been reported by others and must study and endless discussion as to the cause of this lesion have resulted. That it is not so common as it is important when it does occur is shown by the following statistics from Guy's Hospital in which, of a series of 37 fatal burn cases, 12 dying between the third and sixth days, examined for this lesion, no intestinal inflammation was found.

Holmes in a report on 125 postmortem examinations after fatal burns found 16 patients with ulcerations of the duodenum. Of these 5 died on the fourth day, 5 during the second week and 6 at a later period. At Bartholomew's Hospital 138 deaths from burns, with postmortems, took place in ten years; of these but three cases of inflammation of the gastro-intestinal tract occurred. In London Hospital, Dr. McCarthy saw but 2 cases of duodenal ulcer in 8. Erichsen reports 2 deaths from duodenal ulceration, after examination of 68 cases of fatal burns; and in another series of 22 cases in which postmortem examination of the abdominal organs were made he found them healthy in 5, generally inflamed with some trace of peritonitis in 11, duodenal ulceration in 6 cases.

The cause of this ulceration according to some surgeons is unknown, others believe it is due to poisoning of the adenoid tissue, especially that of the duodenum, which comes from the blood, or is thrown off by the liver in the bile. This explains why the ulcer is found most often in the pouch of the duodenum, placed posteriorly, just below the opening of the common bile-duct. This theory was supported by Wm. Hunter who used the following experiment to show that poisons generated by absorption of matters from the site of a burn are the cause of duodenal ulcers. He injected subcutaneously in a dog from 3 to 5 milligrams of toluylendiamin and later examined the viscera for pathological changes. In animals thus treated an intense duodenitis was found, due to the excretion of the poison by the bile. Hemoglobinuria occurred after the injection of the drug, as it does after certain burns.

Another theory and one which I think is well borne out in fact, is that of thrombus formation. It has been well proven that fragmentation of the red blood-cells occurs after burns and that semi-solid particles are absorbed and carried into the circulation. It is an incident whether the thrombus be carried to the duodenum or to some of the other viscera; after the capillary embolism has taken place, antemortem digestion completes the process of ulcer formation.

In my readings upon this subject I have found many descriptions of duodenal ulcers, but no clear narration of cases where this lesion occurred alone. Grange reports his findings of a suspected case of duodenal ulcer; a man burned variously over the body to one-sixth of its extent died on the fourth day. At the postmortem examination no duodenal ulcerations were found, but disintegration of the stomach had occurred.

Tay reports the case of a woman, aged forty-eight years, burned over the chest, neck and face, by a paraffin lamp. The most prominent constitutional symptom was pyrexia; death occurred on the twenty-fifth day. Upon postmortem examination of the arch the aorta was found full of coagula; the valves and heart were normal. Two ulcers were found on the curve of the stomach, but no lesion of the duodenum was found. It would seem in this case that the continued high temperature gave rise, as borne out by the experiments of Schultze, to an increased tendency to fragmentation and clotting of the blood.

Another case is reported of sudden death after a burn from hemorrhage of the stomach. Upon postmortem examination no gastric ulceration, but congestion of the mucosa of that organ was found. In the duodenum, neither an ulcer nor congestion were found.

Carhart records a case of suspected ulcer, with recovery, after a burn which extended over a total area of six square feet. After four days the stools became clay-colored and of a cadaveric odor, with the symptoms of a duodenal ulcer developing. The patient laid on his back most of the time, and while healing was protracted, bed-sores forming, the patient recovered.

Hill reports a typical case, following a scald of the legs, back and buttocks of an idiot girl, aged eighteen years; death occurred eighty-three hours after the accident, vomiting having come on after twenty-four hours. At the postmortem, a perforating ulceration the size of a shilling was found on the posterior surface of the bowel two inches from the pylorus. Its edges were pulpy, somewhat thickened and adherent by plastic lymph to the head of the pancreas. The surrounding peritoneum was inflamed. The stomach was found empty, slightly injected and inflamed. The lungs were somewhat congested. No hemorrhage occurred from the bowel.

A case of frostbite is reported to have finally ended in death from duodenal ulceration, as was proven by subsequent autopsy.

Symptoms of ulcer formation are usually meager. From descriptions of the suddenness of the onset of the condition, a study of the temperature is important. A sudden fall occurring especially between the fourth and twelfth day should excite grave suspicion; the time cannot be set down as unvariable, however, as a case is reported as occurring one hundred days after the accident. Ulceration, however, occurred in the large intestine. This subsequently healed.

Annandale reports a case of death from duodenal ulcer on the seventy-fifth day after the burn was received, the fourth day of the ulcer. Holmes recites the history of a patient of his whose death occurred from a duodenal ulcer, three years after recovery from the burn had taken place.

A typical duodenal ulcer, following a burn, takes the form of an indolent, circular, non-indurated, punched out ulceration and when deep, lymph is thrown out upon the peritoneal surface, offering thereby a natural protection from perforation; or, after a perforation has occurred, plastic lymph may at times be thrown out in sufficient quantity to occlude the opening. When ulceration into one of the duodenal blood-vessels occurs, fatal hemorrhage is the rule, likewise, connection with the serous cavity of the peritoneum with a developing peritonitis will cause the death of the patient. From the fact that cicatricial ulcers have been found in patients who died of complications after burn injuries, the importance of a given case will rest on the amount of surgical injury produced.

Contraction after the healing of burned wounds is of common occurrence. The depth of the wound is not the chief factor of its production for many burns which extend only through the skin have been followed by the greatest contraction. Friction during healing is the principal factor. It is for this reason that burns over the flexures of the joints are especially liable to this complication. The greater the friction caused by muscular movement (applications or dressings, must be added as a source of granulation irritation) the more exuberant will be the granulations. The larger the granulations, the greater will be the amount of connective tissue and the more will be the contraction.

*Treatment.*—Deaver has stated that every medical book is a rehash of what has gone before, but this must ever be so where true advance is made. The foundation of medical science has been laid and what is to come needs no firmer base. A man writes surgery because he thinks he has learned how to do things and wants to tell others how well they can be done. I have no new theory to present in regard to the treatment of burns. Many and varied have been the methods of treatment suggested and advised for these injuries; from the cook's dredger to complicated germicide mixtures, the underlying principle has been the same, namely, to prevent mechanical irritation of the surface of a hypersensitive wound and allow granulation to go on unhampered.

Hippocrates secured the least friction, consequently obtained the best results, in his treatment of burns by using lard and aromatic oils; to-day, caron oil is the common remedy for burn wounds. Oily applications to burns have the disadvantage of becoming rancid and dissolving otherwise aseptic sloughs which are dry from charring, and allowing infection to take place through the sloughing mass. Dressings become saturated and dry with a crust which causes irritation of the wound surface.

Gross found that carbonate of lead mixed with oil, common white-lead paint, applied to burns added to the value of mere lubrication by providing a support for the granulations; thus carrying out the idea of scab formation in wound healing. The coagulation of the contents of vesicles and the serum poured out upon the surface of a burn wound is plainly Nature's attempt to form a base for granulation formation, but pus infection too often mars the plans. Guzzo helped scab formation by using glycerin. Bilroth employed a solution of 2-per-cent. silver nitrate, painting over the whole wound. He stated that, though very severe pain is sometimes caused by this method, an eschar is formed and healing takes place more rapidly than by other methods of treatment. Skey uses a 10-per-cent. solution of the same drug, with a similar object in view.

The danger of using the silver nitrate eschar as a protective and support for granulation lies in the fact that infection will take place beneath it and being confined increase the irritant action of the pus organisms.

Velpeau found that pressure by adhesive straps would promote healing, and by this means secured support for granulation formation. Druitt followed out the same principle when in burns which refused to heal he employed a sheet-lead plate cut to the size of the burn and held in place by adhesive plaster. He gave absolute rest to the part, prevented friction and the burns got well.

As a friction protective silver-foil has lately been employed in the treatment of burns at the Johns Hopkins Hospital.

Picric acid in various solutions has been advised as an early treatment for burns before granulation commences; it is said to deaden pain.



Heath forms a scabbing solution by mixing one part of collodion with two parts of olive oil; using it especially for burns about the face.

Pure carbolic acid in solution, lately advised by some surgeons to be painted over burns, counteracts its virtues by being often very painful and by causing additional eschar. Although the intention is to cause a sterile, superficial eschar to be formed over the surface of the wound, we cannot be positive that micro-organismal (pus) growth has not taken place beneath the slough. It is therefore not a wise procedure to so seal up a burn wound.

Copeland reports two cases which were treated in an original manner by him along the same lines. The first patient was a man whose face, ears and hands had been burned in a boiler explosion. He had been treated with cotton and cosmoline dressings daily with no benefit and was in great pain, with wounds freely discharging. By the use of mosquito-netting the face was protected, and from pasteboard the doctor constructed open-end boxes in which the hands were placed and so held by means of plaster that they did not come in contact with the pasteboard; the ends were covered with netting to keep off the flies. No other dressing was used. By the next day all discharge had ceased, pain had disappeared, and there was glazing of the open wounds. Recovery commenced at once and was uninterrupted, leaving little disfigurement. The second case was that of a little girl, aged two years, whose clothes catching fire, was burned on one of her thighs over an area of two by three inches. Household remedies caused the wound to do badly; at the end of two weeks, fever developing, Dr. Copeland was called. He formed an oval pasteboard cover retained in place by adhesive straps, which he left over the wound for three days. Upon removal he found a well-formed scab, no fever, and healing well advanced.

By a study of the principles which underlie these different methods of treatment, we can arrive at but one conclusion. Secure protection for the granulations forming over a burned area and we will obtain a perfectly healed wound. There will be no danger of distortion of the scar or loss of function from contraction. Dusting powders of all kinds are as foreign bodies to burns and prove their irritant properties by the amount of discharge they cause.

Constitutional treatment of a patient burned is of the greatest importance and would naturally come first in a study of these injuries; but as I wish to direct attention to the treatment of a burn considered as a wound, I place it last.

The commonest and most dangerous source of irritation to a burned wound is infection. Suppuration has been considered by most surgeons as inevitable and, until Morton and Morris began advocating antiseptic treatment of these wounds when first seen, nothing was done to prevent this condition. The latter surgeon writes strongly and says common wound principles are "shamefully neglected" by the profession in these cases.

These gentlemen, however, do not advocate frequent changing of dressings of burns and I find this teaching general in the writings of the profession. Morton states the great principle in the treatment of burns to be to allow the dressings to remain on as long as possible. Morris believes that frequent dressings are not only uncalled for but injurious.

From time immemorial it has been taught that air is an irritant to a burn and the common practice of some surgeons is, when dressings become saturated with discharge, to apply more dressings, externally, without removal of those beneath. Air is not an irritant to a burn and a burn wound which has been buried under layers of pus-soaked gauze or cotton batting for days is the better for removal, without fear of what the presence of air may do or that pain will be caused.

The pain of a burn is due to the direct action of heat upon the terminal sensory nerve-endings; continuous subsequent painful manifestations are due to the irritation of sloughing tissues, applications of dressings. The question of pain occurring when burns are dressed depends on the care in which the dressings are removed, and what the nature of the dressing applied next to the wound surface has been. Gauze, patent lint or cotton, dry and stick fast to this form of wound, as to any other where there is any oozing, and will irritate the granulating surface so long as it is on, causing pain when removed at the first dressing or at any subsequent one. The only danger which could arise from removing dressings and uncovering large burned areas is that from loss of body heat following destruction of the epidermis before constitutional reaction has taken place. As a laparotomy wound becoming foul-smelling from discharges is not treated by piling on more dressings, no more should a burn. Seeking to defend his position, one surgeon, speaking of the discharge and odor which follow his treatment of burns with carron oil to which he adds iodoform, states that when a surgeon gets disgusted with the odor so that he is unable to endure it for the sake of his patient, who if seriously burned will not complain of the odor, he had better take up the occupation of horticulture as being more properly within his (nasal) sphere. This gentleman advises few changes of dressings to be made. Handled thus, burns will verily continue to be, as they are usually described, "filthy" affections to treat. It is painful to remove a drainage-tube from a through-and-through drainage of an abscess, yet a clogged tube is useless and becomes the determining factor of the temperature-curve tracings of that case. Aseptic surgery is the ideal toward which we strive; the surgeon who fails to keep clean (free from infection) until healed the wounds of the body which he makes knows he has fallen short and will strive in his future work to correct the faulty technic which allowed such invasion. Burns and scalds are wounds, as much so as an incision or a laceration, and demand as careful treatment. The earlier a burn can be dressed the better will be the result.



Of the household remedies it is sufficient to say that they should not be used. Friends would do best by the patient and assist the surgeon if they would confine their efforts to carefully cutting away whatever clothing was loose about the burn, wrapping about the wound a piece of oiled or wax paper, such as florists use, tied on with strips of muslin. A burn wound so handled is in the best condition for right treatment by the surgeon.

Removing the oiled paper protective; with scissors and forceps cut away all shreds of burned clothing remaining about the wound. Puncture blisters and drain fluid which either will be rapidly absorbed with a febrile reaction or coagulating, awaits but the entrance of pus organisms to become a culture medium. Infection being ever present in the skin, by trimming away all detached fragments a source of danger is avoided. With care cut away as much of the burned subcutaneous tissues as possible; a curette may be necessary and when gently used will cause but little pain. An anesthetic is advised by some surgeons to be used when large, deep burns are to be dressed, and if it does not increase shock it may be useful at times. All of the burned tissues will not be removed at one dressing; inflammation must assist in the removal. Disorganized, dead, burned tissues must be cast off from the living, but we now know that the aid of pyogenic organisms are not needed to further this process.

In selecting an application for a burn, two principles are involved; the agent must cause no irritation and must be antiseptic. The most commonly used antiseptic drug in wound treatment is bichloride of mercury, but in hydrogen di-oxide we have that which to my mind is almost the ideal wound cleanser. According to Houssell of Tübingen a 3 per cent. hydrogen di-oxide solution is equal in power to a 1 to 1,000 bichloride solution, acting on bacteria suspended in aqueous solutions; but hydrogen di-oxide is superior to it in media rich in albuminous fluid, but poor in cells. Where the latter predominate it is again on a par with the solution of sublimate.

Bichloride solution of 1 to 2,000 strength applied to burned areas is often too painful to be borne and in children has caused convulsions. Carbolic solutions, boric acid, sodium bicarbonate or the like, in the strengths advised to be used on burns are too weak to be of value and but add to the moisture of the part; if used stronger they become irritants and increase discharge.

Having cleared up the wound, it is next to be thoroughly washed by syringing with a solution of hydrogen dioxide, one part to six of distilled water. I have many times used a full-strength solution without causing pain, but routine treatment had better be commenced with weaker solutions. Much dead tissue will be dislodged and washed away in addition to that removed with instruments. When foaming has practically ceased commence the dressing of the wound by applying all over its surface and well over the edges to sound skin

strips of rubber tissue in size about  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch wide by three or four inches long; each strip to overlap the previous one laid down by a small margin. Rubber tissue is now made membranous in quality and it is this form which will lie best and cause least irritation.

A few layers of loose, sterile gauze is to be fluffed over the tissue and the whole held in place with a gauze bandage or by means of two or three narrow adhesive strips. To secure perfect rest we must place the part in the best position to obtain muscular relaxation, applying splints for retention and support. They should be well padded and held to the part by adhesive plaster, over which should be applied a muslin bandage to complete the dressing.

Dressings must be so disposed that no pressure upon the forming granulations will result or irritation will be caused. Barber uses rubber tissue in large sheets, wrapping it around the limb, as he says "the tighter and more snug the better will the air be excluded and the quicker will be the recovery"; over this he applies absorbent cotton held on with a roller bandage. Where destruction of muscles, tendons or their sheaths has taken place after burn injuries, the mechanical balance of the mechanism of the joint affected will be destroyed with a commensurate loss of function dependent on the extent of the injury. In such cases the best we can hope for is ankylosis in a good position for future usefulness.

Dr. J. Webb, speaking of the hopelessness of the local treatment of old burns about joint flexures, which are ever contracting and breaking down, advocates radical surgery. One of his cases was that of a man suffering for twenty-one years with a burn of the popliteal space which refused to heal and destroyed the function of the joint. The second case occurred in a woman and consisted of a burn over the elbow, extending but through the skin. This wound healed and broke down continually, as did the other. Amputation was performed in each case. The patients did well and were decidedly less crippled after the operations than before.

There are cases which will require amputation after burns, but they will become fewer when the fresh wounds are given the careful attention which they deserve. The case of my own, which was the cause of arousing my interest in the treatment of these injuries, was that of a man burned on the outer side of the arm, over the bend of the elbow and the front and inner side of the fore-arm half way down to the wrist. The burn extended into the cellular tissue beneath the skin. Treating this wound as I have described, the scar tissue which formed during healing partook so closely of the nature of the normal tissues that a perfectly restored arm was the result. A subsequent case was that of a man suffering from a scald of hot water over the front

of his left leg, ankle and instep; carron oil had been used for three days before I commenced treatment of the case. With hydrogen dioxide, in full strength I syringed the wound, thoroughly washing away the masses of organized exudate and shreds of dead tissue, and trimmed away all of the blebs and loosened skin covering the scald. Rubber tissue strips were applied with gauze and bandage, as described. Pain, which had been a prominent symptom, and the discharge stopped at once, and though I had great difficulty in preventing movement of the ankle joint, as the patient returned to work after the first dressing, healing commenced immediately and went on to rapid recovery with a resulting scar which was freely movable and non-contracting. The granulations in both these cases were minute and closely packed from the commencement of the treatment until they leveled off and became permanent tissue.

The number of times that a burn should be dressed will depend on the amount of discharge which comes from it after the wound has been cleansed. Where there is danger of parts burned touching each other, they must be dressed separately to prevent distorted growth, particularly in the case of burns about the fingers and toes. To secure good results in burns of the hands of young children great care will be necessary. Burns of the palmar surfaces will require careful splinting until perfectly healed to obtain the best results. In such cases a posterior splint with a pad placed and held with adhesive straps so as to produce extension, is best. Cases which have done badly had better be left until the child is five or six years of age before attempting plastic work. In burns about the lax tissues of the neck and over the flexor surfaces of large joints, immobilization by whatever means it can be best obtained is of special importance. A burn about the neck which destroys the skin requires absolute rest and, as in fracture of the clavicle, the result will depend on it.

As surely as we can mark the growth of large, angry granulations, so can we tell what the result will be in after-time when the patient returns with a terrible contraction. The application of caustics or powdered pepsin is but an attempt to balance friction and contraction and too often fails. Plastic surgery will step in and change the current of events, but ours is an era of preventive medicine; attention, therefore, during the early formative (healing) stage to the wound, along the lines of common surgical wound treatment, will be effective and such cases will become known from their rarity.

Burns of the face are described as generally doing well and cases are reported as healing without a cicatrix, even when deep ulcers were present, while similar injuries upon the extremities do not do so well, taking longer to heal without securing as good results. The idea of an extra blood-supply in and about the

face causing wounds of these parts to heal quicker than those of other parts of the body is fallacious. Practically all tissues have capillaries and it is these vessels which are the important factors where healing is taking place.

I have found a wound of the back or the leg equally deep as one of the face or scalp to heal as quickly as the latter when I have secured rest and freedom from irritation. Again, I find in my work that when I am not clean in a wound treatment, those of the face or scalp suppurate as quickly as do other parts.

Every individual has powers of healing equally developed over his body. Rest of the part, in its broadest sense, is the factor in the production of quick healing of a wound. An individual in repose or in activity will not move the facial muscles as much as his hands or legs if suffering from a wound of the face, hence the diversity.

Burns of the mouth and throat will require active treatment, which should be begun as soon as possible. Carbolic-acid burns of these parts, treated at once with alcohol, pure or dilute, as the requirements of the case call for, will promptly save life or prevent future constrictions. In cases of carbolic-acid burns from swallowed acid, we must remember that the antidote alcohol is a poison in itself requiring immediate lavage. Death occurred where this was neglected in the case of a child who having swallowed carbolic acid was given three and a half ounces of alcohol.

Edema of the parts should be treated by hot baths and diaphoretics; if no relief is obtained, scarify the base of the tongue, and pharynx, puncture the epiglottis and the sides of the larynx with a curved bistoury, guarded by a finger and wrappings of adhesive plaster or cotton; afterward use hot gargles and apply poultices to the sides of the neck. As a last resort, based on the fact that edema does not extend below the vocal cords, Ashhurst recommended the operation of tracheotomy, himself having performed it for edema of these parts after mouth and throat burns of various kinds twenty-eight times with five recoveries.

Lime splashes in the eye should be treated by dropping water acidulated with vinegar into the conjunctival sac. Copious irrigation by means of a strong force of water is often the best remedy. Particles should be removed with the moistened end of a handkerchief or a wisp of cotton twisted on the end of a match stick.

The treatment of burns due to the action of electricity in the production of the X-ray calls for absolute rest of the part and drugs to overcome pain, as shown by the case reported by Orleman. The burn took the form of an ulcer which refused to heal for ten months in spite of many forms of treatment, and was finally determined to be a trophic neuritis. A case has been noted in an English medical journal, which



came to coroner's inquest alleging death from Roentgen-ray photography. A woman suffering from fracture of the thigh-bone in March, 1900, was exposed upon the sixth of April to X-ray examination for two hours and twenty days later to a like exposure lasting two hours and ten minutes. "The latter exposure was followed by inflammation, and, so far as can be gathered from the newspaper reports, by ulceration of the abdominal walls." The woman became mentally unbalanced and death followed.

The sun's rays may cause burns of the first degree of severity. If attended to at once before vesication has taken place I know of no better remedy than that of Dr. Wood, as follows:

R Vinegar or dilute acetic acid, fl. oz. j.

Glycerin ..... fl. oz. j.

Bismuth subnitrate, q. s. ad to paste.

Sig. Apply to burned parts.

Where vesication has taken place the treatment is the same as for other burns.

F. Mulig reports two cases of systemic poisoning following the use of bismuth subnitrate as an application for burns. In one case the treatment had been carried on for nineteen days, in the other for twelve days, when the patients began to suffer from stomatitis, salivation, blue line on the gums, and dysphagia. In both cases a thorough curettement of the wounds was necessary and a month passed before the symptoms entirely ceased. I think we need have no fears, however, of poison symptoms arising from the use of bismuth in this prescription for sunburn.

Skin-grafting is an important adjunct to the treatment of burns when large areas of skin have been denuded. Bryant lays great stress upon this procedure. McBurney, in skin-grafting for this and other forms of injury at Roosevelt Hospital, after clearing away and rendering the wound aseptic, employs rubber tissue as a protective in the form of shingles, in order that the salt solution, with which the gauze is wet may penetrate to the grafts. The rubber tissues, after being washed, is used again at subsequent dressings. Common oiled muslin was tried and found to be dry, stiff, hard and irritating; cotton batting was condemned on account of sticking and being irritating to the parts.

The constitutional treatment of a patient burned should be begun by placing him in a well-warmed room, in a bed screened to prevent drafts. Pain is the first symptom to be combated by the use of opium. To an adult,  $\frac{1}{4}$ -grain doses of morphine sulphate should be given at intervals of thirty minutes, until the pain is controlled. We must remember that it is the pain which we are treating and while pain is present we will not reach the therapeutic limit of our drug. Often  $\frac{1}{2}$  of a grain will be needed as a first dose. I have neither seen nor heard of harmful results from an overdosage of this drug while pain was present. Should such a case arise we have but to employ the antidote for opium, which is co-

caine in sufficient dose to overcome its action. To an infant give 2 to 4 drops of tincturæ opii or tincturæ opii camphorata, repeated at intervals of thirty minutes until quieted. Naismith advises the use of ice cold baths to the burned parts as a "preliminary" treatment until pain has passed away.

In Vienna a treatment is followed out which consists of immersion of the burned parts in water kept at the normal body temperature. Shock coming on the patient complains of cold. Blankets, hot bricks, bottles or bags are the external requisites to promote reaction. At once may be given hot drinks; such as brandy in one-ounce doses, strychnine gr.  $\frac{1}{30}$ , atropine gr.  $\frac{1}{60}$ . Baxter advises for shock, baths at a temperature of 95° F. continued for periods of two hours. Von Nussbaum advises baths at 100° F.; he says this treatment has decreased the mortality of burns in the hospitals of Germany.

Vomiting coming on during the course of a burn is at all times serious and, while it may occur at any time, it is particularly liable to appear with the reaction of the body from shock. The patient becomes very thirsty and great care must be used in the quantity of liquids given; thirst should be quenched with cracked ice. No liquids or medicines are to be given by the mouth. The strength of the patient must be kept up by rectal feeding.

Brieger reports a case successfully treated by atropine sulphate given hypodermically. His first patient suffered from an extensive burn of the first degree caused by clothing catching fire; he was placed on a Hebra water-bed during treatment; on the second day vomiting began. Five milligrams of atropine sulphate were given during the course of the next two days. Vomiting ceased after the first injection; all threatening symptoms passed away and the patient recovered. In two other cases this treatment kept vomiting in check for hours, but did not prevent fatal termination.

Atropine is an antidote for muscarin. Brieger's theory is that by learning the nature of the ptomaines given off in burns poisonous atom groups may be introduced which will unite to form non-poisonous compounds.

The bowels and bladder will oftentimes require continuous attention. The surgeon must bear in mind the danger of setting up a diarrhea after burns by treating constipation with aperients; enemas should be the only means used. The internal treatment of ulcers, should they develop, includes treatment for relief of the kidneys, diuretics, stimulants, with a milk diet. If uremic symptoms arise, produce diaphoresis.

During the period of reaction when everything must be done to support the patient's strength at this time internal congestions must be watched for and treated actively. Now, too, is the danger from pyemia from the



patient being allowed to lie in a bath of pus of his own making and absorption taking place; frequent dressings of the burned parts is the preventive treatment.

Hopeless cases of burns may be put in the continuous Hebra water bath, or the burned parts wrapped, as suggested by Dawson, in sheets of rubber tissue, oiled paper or oiled rubber tissue.

### Summary.

Burns are the commonest of injuries and of all wounds they are treated least in accordance with now universally taught and accepted surgical principles.

Burns may be divided into two degrees of severity; burns of the first degree involve the skin only, those of the second degree include all others.

The pathology of burns is the pathology of inflammation of the part locally affected with almost all the morbid changes possible in the complications which result.

Early death and internal complications after burns are due to direct action of heat, with fragmentation and vital change in the blood-corpuscles; later effects are due to infection taking place from the burned area.

The condition of the granulations during the healing of burns is the determining factor in the amount of contraction and subsequent deformity which takes place. The greater the friction caused by irritation from whatever source, the larger will be the granulations, the greater the amount of connective tissue and the greater will be the contraction.

The local treatment of burns from the earliest times has been along the lines of prevention of irritation, but the late advances made in wound treatment have not been followed out in these.

The burn wound should be cleansed of as much dead, burned tissues as possible; the thoroughness with which this clearing away of the eschar is done will determine in a great measure the amount of future discharge, and the presence or absence of infecting organisms.

Hydrogen di-oxide to wash away the débris and render aseptic the denuded parts is the best antiseptic at our command; rubber tissue in strips should be laid on the wound to prevent contact with the absorbent dressing.

The use of splints to secure relaxation and retention in obtaining rest for a burned part is of great importance and is as much indicated in this form of injury as in fractures of the contiguous bones.

The internal treatment of burns is stimulative until reaction from shock has taken place when it becomes supportive.

Opium fulfils the indications for pain, internal inflammations and diarrhea.

The bowels and kidneys must be continu-

ously kept open, but enemata only should be employed.

Watchful attention must be paid for early signs of internal complications of the viscera.

805 Madison Avenue.

### CARBOLIC ACID IN BURNS.<sup>1</sup>

BY OTTO L. MUENCH, M.D., PH.G.,  
OF WASHINGTON, MO.

SOME years ago I chanced to read in one of the medical journals an article written by a regular physician, who claimed that he had used carbolic acid pure in the treatment of burns with the result that pain was almost instantly relieved and an early cure effected. This statement somewhat astonished me and I admit that I was very skeptical on the subject for the following reasons.

Carbolic acid is, as we all know, a powerful escharotic and corrosive poison and acts as a strong caustic upon animal and vegetable tissues, even a weak solution of it destroying small animals. Its action upon man is analogous and when taken internally it irritates the gastro-intestinal canal, produces a feeling of intoxication, and turns urine an almost inky color. These phenomena are naturally most intense when a poisonous dose of acid has been taken and there may be added graver symptoms, such as delirium, dilated pupils, coma and death. I cannot imagine a worse suicidal medium than carbolic acid and still we hear of all sorts of people resorting to it as a means of suicide. This poison, I think, is frequently grasped at, because the public read so many sensational newspaper articles that they become convinced carbolic acid is a certain death when taken internally and because it is easily purchased without creating suspicion.<sup>2</sup> When undiluted the acid becomes caustic, as I said before, and may produce mummification of tissue; cases are on record in which the application of pure acid to a finger has caused strangulation and gangrene.

The best antidotes are albuminous liquids which are coagulated by the acid.

Externally carbolic acid acts as an escharotic when applied in the pure state, combining with the tissues and destroying them. Strange to say, however, its action on a burned surface as an escharotic is neutralized by the albuminous effusion becoming coagulated and local anesthesia of the peripheral nerves takes place. This looks like "similia similibus curantur." Its action in a dilute form when applied externally in promoting the cicatrization of wounds not burns is readily understood without the necessity of invoking its antiseptic qualities, for like many allied substances it operates as a stimulant to the parts to which it is applied, contracting and hardening them, while it protects them from the action of

<sup>1</sup> Read before the State of Missouri Medical Association.

<sup>2</sup> I suppose that, when these subjects reach the point where self-destruction is sought, the physical torture which carbolic acid produces is not taken into consideration. Death in such cases is not the direct result of the corrosive action alone upon the mucous membranes, but of the corrosion and paralysis of the epiglottis and subsequent rapid strangulation, the direct cause of death, then, being strangulation.

the atmosphere and thereby limits those secretions which tend to delay the healing process, while it favors the natural granulation or healing process through which alone new tissue can be formed.

The general result in burns treated with carbolic acid is that there is complete exclusion of air and coagulation of the serous effusions, and the healing process takes place with much less suffering and in a shorter time than by any other method which I have tried. We, of course, understand that carbolic-acid poisoning by absorption may result in some surgical cases when employed in too dilute a form, although in my practice during the last sixteen years and my hospital experience before I have been a strong advocate of carbolic acid in all cases where antiseptics in surgery or gynecology was necessary, I have failed to see one single case of poisoning from its use. Ever since the introduction of carbolic acid into surgery it has been assumed that it owed its advantages exclusively to its antiseptic virtues, but as I said before the exclusion of air is a very essential part in all antiseptic dressings for this prevents the entrance of microbes.

We often see in surgery where a laparotomy is undertaken that the surgeon, if in doubt as to the cleanliness and possible lodging of germs in the interstices of the epidermis, will resort to bathing the hands in pure carbolic acid, but immediately after washing it off with alcohol, the alcohol neutralizing the action of the acid.

There are a great many physicians who set aside carbolic acid as old-fashioned and instead employ bichloride of mercury as an antiseptic in obstetrics. The bichloride tablets are carried in the buggy case and no doubt are very handy, but in my experience with obstetrical and gynecological cases carbolic acid has been especially effective where septic infection has taken place, fever usually about the third to fifth day, rapidly subsiding after a thorough flushing with a strong solution of carbolic acid; by which the source of infection has been effectually sealed and further damage was prevented. I commend it especially in obstetrical cases after a forceps delivery, if the parts have been more or less bruised.

It is not necessary to go into details of the affections in which carbolic acid is used and in which its antiseptic qualities in a dilute form are inferior to bichloride of mercury. I will therefore proceed to give my experience with its use in the treatment of burns.

As previously stated, several years ago I had read the article on carbolic acid in burns and determined at the next opportunity to test the efficacy of this remedy. It seemed to me like homeopathy and in fact is an instance of "similia similibus curantur," although the "homeops" cannot claim any priority of discovery. The opportunity to test it soon came. I had burned my fingers severely on a bicycle lamp which I was admiring (but my admiration ceased at once), and not being very far from my office, made a

bee-line towards it. I applied the much-lauded carbolic acid pure and to my surprise the pain ceased almost within ten seconds; there remained no further inconvenience except a feeling of constriction around the burned surfaces. I anxiously awaited the results and they were as follows: No blisters, swelling nor inflammation; the corroded skin came off in a few days, leaving a new skin and causing absolutely no inconvenience or pain at any time after the application. I did not even bandage the fingers, the surface where the acid had been applied acting as a protective calus. This being a small surface, however, I was not yet satisfied.

The next case which I was called to was a girl, twelve years of age, who had collided in the doorway with her mother; the mother was carrying a pail of boiling water, the contents of which were thrown over the little girl's chest, neck and shoulders. This was a case in which an extensive area had been scalded and I was rather timid in applying the carbolic acid. I did so, however, and immediately applied a vaseline dressing over the chest, neck, shoulders and face where burned, as my experience in my own case did not yet convince me of the efficacy of carbolic acid in burns on a larger area. To my great satisfaction and that of the girl the pain ceased within a few minutes and the case went on to recovery, without a single sign of a scar or contraction of the muscles of the neck.

The next case is a most interesting one in as much as I was one of the unfortunate occupants of a gasoline launch in which an explosion of gasoline took place. Mr. A. A. T. of our city had purchased for himself and friends a beautiful gasoline launch and in order to initiate his friends into the mysteries of gasoline boating on the Gasconade River, invited a number of them, with myself, to participate in a hunting and fishing excursion. Suffice it to say that we were all "on deck" when the time arrived to leave and reached our destination in due time. The gasoline engine, however, had become balky and Mr. T. and myself, as "expert engineers," concluded the fault lay in the quality of gasoline and proceeded after landing, to empty out the old gasoline to replenish same with new and better. Pardon me for telling this little story and I do it only in order that any suspicion of carelessness on my part will be eliminated from your minds. We were letting the gasoline run into the large pan under the engine and from there pumping it with a hand pump into the river; while I was stooping in the stern of the boat, Mr. T., who had warned all present not to come near with a fire, inadvertently made a connection with the electric-spark apparatus which ignited the gasoline vapor in the air and the next instant the boat, or rather the gasoline tank, blew up. I conceived in an instant what had taken place and had presence of mind enough to throw myself overboard into the river and into fifteen feet of water, the bank where we landed being so precipitous that it was impossible to get ashore quickly.

Mr. T., however, tried the shore route first, could not succeed in getting out of the boat, and finally followed my example and jumped overboard. Now, the river was all on fire as it were, the gasoline having been thrown upon it without a breath of air stirring and had remained where thrown. When I made my first appearance on the surface after my eventful dive, I came into a veritable hell of fire, and thought of the proverb "absence of body is better than presence of mind"; I did not stay long, you may imagine, but immediately made another dive and swam to shore under water, where I was drawn out unscathed and up the bank by some of our friends on shore.

Mr. T. did not fare so well. He was horribly burned; his entire head, face, neck and hands being one burn, the prominences as nose, chin and ears having been burned most severely, also the hands from which the skin hung in shreds. We left in a skiff at once for the station, only a few miles away, during which time Mr. T. suffered intensely. When we arrived at a physician's office I called for "pure carbolic acid." To the old M.D.'s surprise and consternation I vigorously applied the same to Mr. T.'s face, neck and hands, although at the time I considered the treatment rather heroic. I will state here that I also gave him a hypodermic of a quarter of a grain of morphine for the purpose of counteracting nervous shock, with the result that the pain from which he had been suffering intensely before ceased in about five minutes. We hired three oarsmen to row us to Hermann, Missouri, about five miles distant, where with the assistance of Dr. Brockhausen, I applied vaseline over the entire head, face and hands. The patient recovered without a single scar, although there was some sloughing on the end of the nose and rim of the ears.

I have since used carbolic acid on small burns in my family and elsewhere with the same result, but the above case is the most extensive burn upon which I have applied it.

#### INERTNESS OF PETROLEUM COMPOUNDS WHEN GIVEN MEDICINALLY.<sup>1</sup>

BY ROBERT REYBURN, A.M., M.D.,

OF WASHINGTON, D. C.;

PROFESSOR OF PHYSIOLOGY AND HYGIENE, MEDICAL DEPARTMENT,  
HOWARD UNIVERSITY.

WHEN we consider the chemical history and properties of the derivatives of petroleum and the more solid portion usually called paraffin, we are struck with their indifference to the action of strong acids and alkalis that usually destroy or combine with organic bodies.

The name paraffin (*parum affinis*, without affinity) is derived in fact from the character. Paraffins are not easily acted on by the strongest chemicals. Boiling hydrochloric acid or contact with chlorine gas, ammonia, potash or soda has no effect upon paraffin. By continued boiling with strong nitric acid, the higher paraffins yield nitro-compounds and various acids.

In view of the above facts it becomes an in-

teresting study to determine to what extent petrolatum, when taken internally, can be absorbed into the body and its value as a medicinal agent.

It is universally admitted that fats of all kinds, when taken into the human stomach, are absorbed by the process of emulsification. This takes place by the action upon them of the alkaline fluids of the small intestine and pancreas. Cod-liver oil, for instance, is preferably given two hours after meals, for the reason that at that time the process of stomach digestion by the acid gastric juice is then nearly completed. The oil then passes nearly unchanged from the stomach into the small intestine, where it is emulsified and is absorbed into the lacteal system.

The wonderfully restorative effects of cod-liver oil in cases of tuberculosis and, indeed, in almost all conditions of the system which are attended with defective or impaired nutrition, has given it an importance and value far above any other medicine in the treatment of these cases. The disagreeable taste and odor of cod-liver oil are, however, great obstacles to its use, and some persons (though fortunately these are few in number) cannot take it at all. Other oils of less disagreeable flavor have been recommended as substitutes for cod-liver oil and among these the derivatives of petroleum have been largely prescribed and used.

The first question to be decided is, Are the compounds of petroleum, when taken internally, absorbed and made part of the tissues of the body in the same manner as, we know from the long experience of numerous observers, is the case when our patients take cod-liver oil?

An interesting series of observations on this point is given in a monograph on "The Behavior of Petrolatum in the Digestive Tract," issued by Drs. N. A. Randolph and Samuel G. Dixon in 1885, setting forth the result of their investigations in the Physiological Laboratory of the University of Pennsylvania. The following is an extract:

"The mixture of hydrocarbons, recognized by the pharmacist under the name of petrolatum, and popularly used under the commercial names of cosmoline or vaseline, presents on superficial inspection few points of difference from some of the organic fats of the same consistency. Close examination reveals differences, both in physical properties and in chemical constitution, between the bodies just compared. One point of difference, which I have as yet been unable to find recorded, lies in the respective behavior of these two groups when in contact with the absorbent surfaces of the digestive tract. Thus, while the organic fats as ordinarily taken in food are readily and almost completely absorbed, this soft paraffin is entirely rejected and found unchanged in the feces. During the eight days I took daily one-half ounce of commercial vaseline in addition to my regular diet. Digestion was in nowise altered, and no appreciable results ensued. Later, two healthy adults each received in the course of forty-eight hours one ounce of vase-

<sup>1</sup> Read before the American Therapeutic Society.



line. Their alvine dejections for three days from the beginning of this observation were collected and dried, and, at the suggestion of Dr. John Marshall of the University of Pennsylvania, extracted with petroleum ether. Making a slight allowance for incompleteness in extraction, the vaseline ingested was in each case recovered in its totality, showing that it had passed through the economy unchanged and unabsorbed."

Pure petrolatum, while entirely unirritating to the digestive tract, is valueless as a foodstuff.

Dr. Hutchinson in a paper published in the *Philadelphia Medical Journal*, April 15, 1899, p. 813, relates a similar experience with petroleum emulsion or rather petrolatum. In one case he gave 7 grams and recovered from the feces 7.1 grams, and in another case he gave 21 grams and recovered from the feces 21.6 grams. The increase of the amount of fatty matter found over the amount administered is probably to be accounted for by the solvents used having dissolved some of the fat which had been taken as food, and which had remained unassimilated in the intestinal canal. Dr. Hutchinson's final conclusion is that the compounds of petroleum or rather petrolatum are not absorbed.

My own experience also with petrolatum when given internally is that it passes unchanged through the intestinal canal. Whatever beneficial effects it may exert in the stomach and intestine are due to its lubricating and demulcent properties. A further incidental proof of the non-absorbability of paraffin and its compounds is shown by our recent experience in its attempted use in surgery. After certain surgical operations which involve great destruction of tissue, great gaps are left in certain parts of the body after the wound has healed. This is especially the case after the extensive mutilations which are necessary for the removal of cancers and other malignant tumors. It has been suggested that the appearance of these parts could be greatly improved by injecting paraffin in a melted state under the skin in order to prevent the adhesion of the skin flaps to the subjacent tissues and thus diminish the deformity. This has been done successfully in a number of cases, but, unfortunately, it was found that dangerous and even fatal results were produced by the paraffin wandering from the point where it was injected and closing up the lymph channels of the part. A reference to this danger will be found in the *MEDICAL NEWS*, April 20, 1901, p. 624.

Finally, therefore, if we consider (1) the entire insolubility of petrolatum and its compounds in either the gastric juice or the fluid of the intestinal canal, and (2) the fact that when petrolatum is given internally the whole of it can be recovered from the feces, we are warranted in stating that petrolatum can in no sense be considered a substitute for cod-liver oil as a nutrient and restorative, and (3) that the usefulness of petrolatum as a remedy must depend upon its unirritating and demulcent properties.

# **STRANGULATED HERNIA OF THE BLADDER; RUPTURED SARCOMA OF THE TESTIS MIS- TAKEN FOR STRANGULATED HERNIA.**

BY THOMAS H. MANLEY, M.D., PH.D.,

OF NEW YORK

EXTRUSION of the bladder walls as a lesion coincident with reducible hernia is not very uncommon; it is very much more frequent than is generally supposed. Three cases of it have come under my own observation.

On this topic a recent writer<sup>1</sup> says the relative infrequency of hernia of the bladder may be appreciated by reference to Moynihan's table<sup>2</sup> which includes 187 cases. This analysis is based upon Bruner's report, which was published in 1889 and includes 38 cases. Other observers have made similar observations, Siegel collecting 73 cases in 1891 and Fenger adding 14 in his report of 1895, making a total in his collection of 87 cases.

It is a matter of general observation that the comparative number of hernias involving the bladder as a complication has increased since the publication of Bassini's method. The reason for this may be ascribed not only to the fact that operations are done more frequently now than formerly, but because the neck of the sac is exposed more clearly by the technic which has been uniformly followed since 1890.

Further insight into the frequency of this condition may be had by an analysis of the 2,500 operative cases<sup>3</sup> in the hands of eight experienced operators, which reveals 23, or nearly one per cent., in which the bladder was recognized as a part of the hernia, and yet, in approximately 700 operations Dr. Coley has not encountered a single case wherein the bladder was associated with the hernia. Dr. W. O. Roberts of Louisville, Ky.,<sup>4</sup> recently added another case which was successfully operated upon, the diagnosis having been made before the bladder was opened.

It has been said that any organ of the abdomen except the liver may find lodgment in a hernial sac, and in the fetal type of congenital exomphocele we may even find this organ enclosed.

From the histories of recorded cases, it does not appear that there are any special characteristic symptoms of vesical hernia, or that its presence as a complication is a source of special discomfort.

While vesical ectopia has long since been noted as an occasional accompaniment of groin and crural herniæ, I have been unable to find any cases recorded in which the condition has been present as a dominant factor in the strangulated variety; certainly none in which a distended, trapped vesical diverticulum has given rise to all the symptoms of strangulation and presented all the physical characters, as in the following case:

Mrs. G., eighty-two years of age; a housewife;

<sup>1</sup>"Hernia of the Bladder," by Charles C. Allison, M.D., Omaha, Neb. *West-Med Review*, March 15, 1901.

<sup>2</sup>*Lancet*, March 2, 1900.

<sup>3</sup>*Lancet*, March, 1900.

<sup>4</sup>*American Practitioner and News*, Dec., 1900.

mother of fourteen children; a hardy, vigorous individual; throughout life has enjoyed fairly good health. During the past four years she has noticed a swelling in her right groin, low down; it was sometimes large, then smaller, and again, it would altogether disappear. She believed it was larger when she was constipated and it troubled her more in winter than in summer.

Throughout February, 1901, it became sensitive, permanent and larger, and at times, painful. On February 25th, she was seized with severe colicky pains all over the abdomen, particularly over the site of the tumor. Her physician came, tried taxis on the tumor and gave her some soothing remedies. She remained about the same on February 26th. At noon on February 27th her symptoms became more urgent and vomiting began. She showed signs of great weakness. Her abdomen had become tense and tympanitic. Taxis on the tumor had been repeatedly tried with no reduction.

On the evening of this date the case was first seen by me. Her general condition then was not as grave as might be expected, from strangulation of three days' standing in one so advanced in years. Her pulse was feeble, but regular, and the extremities were warm, and, though well under the narcosis of morphine, she was fully conscious. She frequently vomited a yellowish fluid without fecal odor. After an enema in the morning she had a free movement. The tongue was moist with red border. Thirst was not very urgent. The abdomen was somewhat tympanitic and sensitive. The lower limbs were drawn up. She had spells of great pain beginning over the site of the tumor. On the inner side of the right thigh, over Scarpa's triangle, a movable mass, about the size of an English walnut, could be defined. This was so sensitive that any pressure on it gave pain. On percussion it emitted a flat note. On inquiry about the urine it was said that she passed it unaided herself.

It was my opinion that the case was one of sub-acute strangulation and that the only effective mode of relief would be through an operation. This was opposed by the family until further efforts at reduction were made. She was then given chloroform and moderate taxis again tried. From the consistence of the tumor it impressed me as being an epiplocele, though I knew well from experience how deceptive the palpable characters of strangulated hernia are. Taxis failed. Three hours later preparations for a laparokelotomy were made. Everything also was in readiness to deal with a gangrenous intestine if it came in view.

Chloroform was again employed and I was ably assisted by Dr. L. Zwisohn, the patient's physician. With three assistants the operation was done in the patient's own apartments, the usual aseptic precautions being observed. The first incision was made from above downward over a distance of six inches, the center passing over the convexity of the tumor. Successively the various layers were divided at the neck of the sac until

Gimbernat's ligament was reached and the crural ring exposed. Then the inner border of the ring was freely opened and with it an adherent branch of the obturator artery was cut in two. The ends of this were picked up and ligated.

It was my purpose to expose the peritoneal pouch, but as I dissected through the investments it appeared that the peritoneum had undergone changes and become adherent to all the adjacent parts. Moreover, the distention of the sac had now entirely disappeared. This puzzled me and for the first time it dawned on me that this might be a case of hernia of the bladder; in spite of the fact that before operation she had been catheterized and six ounces of urine removed.

After a careful manipulation of the parts it seemed to me that we were dealing with only a thickened sac, and that its contents had been returned to the abdomen on the division of Gimbernat's ligament. It was then completely divided with the end of the scissors. Immediately a straw-colored, limpid fluid escaped, much the color of the peritoneal secretion, but being in doubt I introduced into the sac my index finger and it came into immediate contact with a catheter passed through the urethra.

The breach in the bladder was closed by two rows of fine silk suture, the closed wound being firmly secured at the inner margin of the incision in order to provide for possible leakage from the vesical wall. On the outer margin of the bladder a small omental mass was found; this was firmly adherent to all the adjacent parts. It was devoid of a peritoneal investment. It was ligated and cut away. The upper end of the incision was closed, but the lower kept freely open by packing.

The after-history of this case was very satisfactory. The vesical wound healed by primary union with no leakage whatever, but for two weeks after the operation she was troubled with cystitis.

Such is the history of this unusual type of hernia. Without an ocular demonstration we would certainly be disposed to doubt the possibility of a vesical extrusion provoking all the symptoms of strangulation. Here we had a vesical diverticulum slipping out through the crural ring, becoming distended and in time provoking inflammation at the point of constriction, the pent-up, decomposing urine producing excessive irritation with reflex pain over the entire abdomen. This was, anatomically, an example of extraperitoneal vesical hernia of the bladder walls, the parts being projected from below the peritoneal reflection, through the space of Retzius.

*Operative Technic.*—In the recent past the largest factor in swelling the mortality list after operation has been faulty, defective operative technic. Gibbons sets down 15 per cent. as the proportion of deaths from this cause alone. It is my conviction that fifty per cent. would be nearer the figure.

Briefly the fundamental features in technic may be enumerated under the following heads: (1)



A large incision involving a laparotomy; (2) free division of the constriction from without in; (3) the deliberate, methodical and complete treatment of any important complication then and there.

The lives of a large number of those with strangulated hernia are sacrificed by the violence involved in being transferred to hospital; hence, in any other than very exceptional cases, they should be treated *sur le champ*. Let no one allow himself to be intimidated by the phantom of infection, for no hospital ever constructed will provide results equal to a clean, comfortable, orderly household.

The second case is that of a Russian peddler, aged forty-one years, brought to the hospital at midnight, May 21, 1901, in the ambulance, having been seized with symptoms of strangulation early in the evening. A physician who had been called in perseveringly tried taxis, but without success and sent the patient to the hospital. I saw the man an hour after his admission. He was vomiting freely, was very anemic, very weak, and constantly groaning with pain. The abdomen was distended and highly sensitive everywhere. On the right side, extending from the inner inguinal ring to the scrotum, was a large tumor. The scrotum was greatly distended and showed signs of severe bruising by the taxis which had been employed. The mass presented many of the common characteristics of a hernial protrusion; it was continuous with the inguinal canal and seemed to contain a fluctuating substance, solid on percussion. The patient stated that he had had a rupture for five years and had worn a truss the greater part of that time, although it never kept the hernia well up. His bowels had not moved for three days. His features were pinched and showed the signs of severe pain. His pulse was 136; temperature, 97° F. The history and clinical picture of the case pointed to strangulation and operation was indicated.

The patient was anesthetized and an incision, beginning two inches above the internal ring and carried down nearly to the base of the scrotum, was made. On division of the tendon of the external oblique it was at once clear that the spermatic cord was the seat of a new growth which greatly distended the infundibular fascia and extended down to and well into the testicle. The tunica vaginalis was widely ruptured on its anterior aspect and through it projected a large, fungoid, bleeding mass. The tumor of the testis and cord was enucleated, the vas deferens and vascular stems of the cord being divided and ligated at the inner ring. There was no trace of any description of hernia. The rupture of the tunica vaginalis probably was caused by forcible taxis.

The two foregoing cases are thought worthy of record as illustrative of the difficulties which not infrequently beset surgical diagnosis in the treatment of various phases of hernia and allied conditions.

## MEDICAL PROGRESS.

### Bacterial Products and Peripheral Nerves.

—The relation of bacterial poisons and the peripheral nerves has always been of interest. Drs. DOPLER and LAFFORQUE (*Arch. de Méd. Experimentale*, July, 1901) have investigated this subject by the experimental inoculation of a large number of such substances. They employed diphtheria toxin, tuberculin, bacillus pyocyaneus, streptococcus, staphylococcus, pneumococcus, pneumobacillus and cholera and pest toxins. Soluble products of the colon bacillus gave practically no results. These various substances were inoculated locally around the peripheral nerves of guinea-pigs. Account was taken of the clinical symptoms produced and a microscopical examination of the nerves was made. They believe that inflammations of the peripheral nerves of infectious origin are due to the action of bacterial substances circulating in the peripheral blood-vessels. These penetrate by dialysis into the interior of the nerve fiber at its most vulnerable point, the nodes of Ranvier. They exert a necrosive chemical action on the elements of the interannular segment sometimes the axis-cylinder being relatively more affected than the other parts. The entire picture resembles a peri-axillar segmentary necrosis. If the axis-cylinder submits to grave alterations rupture and fatal degeneration follow, accompanied by the characteristic symptomatic conditions.

**Chemical Reaction and Power of Bactericidal Serum.**—As the mode of action of bactericide serum has been compared to that of a proteolytic enzyme, the question is raised whether the chemical reaction of the surrounding medium can influence the bactericidal power. A. HEGELER (*Arch. für Hygiene*, Vol. 40, Heft. 4) has pursued investigations along these lines. His work was confined to the use of antityphoid sera on rabbits. He added acid or alkali to such sera and showed that active rabbit antityphoid serum was not changed in its bactericidal power by the addition of a very small amount of alkali (sodium carbonate). The smallest addition of such alkali, however, to inactive serum caused it to hinder the growth of typhoid bacilli. Small additions of acid, just sufficient to produce a very slight acid reaction to active rabbit serum, did not alter its bactericidal power, but when the reaction was made decidedly acid the alexins of the serum entirely lost such power. Careful observations have shown that the reduction in the number of bacilli in the sera was genuine and not due to an agglutination process.

**Growing Vegetables Contaminated by Pathogenic Microbes.**—This subject has been exhaustively investigated along experimental lines by R. WURTZ and H. BOURGES (*Arch. de Méd. Experimentale*, July, 1901). The first series of experiments was carried on in the laboratory. They took pots of earth in which were planted various vegetables and thoroughly saturated the earth with water containing cultures of anthrax,

typhoid and tubercle bacilli respectively. After variable periods of time search was made upon the leaves for the presence of these organisms. Ordinary "plate" methods were not available, as there was too much contamination by the ordinary earth organisms. In working with the anthrax bacillus they heated these leaves for three minutes to 80° C. and then made gelatin plates from them. With the typhoid bacillus the leaves were placed in carbol-broth and incubated at 42° C. for two hours; platings in gelatin were then made and the organisms recovered, after which they were identified by the agglutination test. With the tubercle bacillus an emulsion of the leaves in sterile broth was inoculated intraperitoneally into guinea-pigs. By these methods they recovered the anthrax and typhoid bacilli in every case for three weeks following the inauguration of the experiments. In one series they recovered the tubercle bacillus once out of four times and in another series eighteen out of thirty times. In another set of experiments they contaminated vegetables under domestic cultivation with non-pathogenic organisms. These were frequently watered, some being protected from the sun, while others were not. Those which were protected always showed the presence on their leaves of the organisms sought, while in those which were not protected these organisms were never recovered. They contaminated potatoes with virulent anthrax bacilli and planted them in boxes of earth. Upon sprouting these were exposed to the sun for three hours daily. The anthrax bacillus was recovered from the leaves of the developed plants 41, 93, and 101 days after planting, but these organisms had lost their virulence. They conclude that, although the bactericidal action of the sun's rays plays an important part in destroying micro-organisms, infection is possible from eating uncooked vegetables and all possible precautions should be taken against contamination of the soil in which they are cultivated.

**Immunity in Relapsing Fever.**—The study of the mode of action of the specific serum on the spirillum of relapsing fever both *in vitro* and in the animal organism, the investigation of the mode of disappearance of these spirilla in the bodies of refractory animals, and the relation between the bactericidal substances and leucocytosis in those sick with this disease have of late occupied the attention of different observers. The most recent work along these lines comes from SAWTSCHENKO and MELKICH (*Annales de L'Institut Pasteur*, July 25, 1901). Their investigations were made during the epidemic of Kansan in the winter of 1900. Their observations included the study of the relation of the spirillum to the phenomena of Pfeiffer and agglutination, together with experimental research with respect to the action of the spirillum in normal and immunized animals. Furthermore, they investigated the condition of leucocytosis in individuals with this disease. They find in the blood of relapsing-fever patients two substances which have a special affinity for the spirilla,

namely, (1) agglutinine and (2) immunizing substances (fixatives). These latter result from the intracellular metabolism of the spirilla and when they combine with the alexins of the serum occasion the destruction of the spirilli *in vitro*. These appearances are analagous to the phenomena of Pfeiffer. The extracellular destruction of the spirilla takes place in certain regions of the body, such as the peritoneal cavity, of an immunized animal where the alexins and fixatives combine but it does not occur in the plasma as the alexines are not here present in a free state. In fifty cases where the blood examination was made before the crisis they never found the detritus of spirilla or those altered after the phenomena of Pfeiffer. If there is not free alexin present in the regions of the body mentioned the spirilla disappear by phagocytosis. The fixatives serve intermediately between the spirilla and the leucocytes transforming a negative into a positive chemiotaxis. The phagocytotic crisis is determined by the accumulation in the organism of the fixatives, be they in the leucocytes or in the bodies of the spirilla, and contribute undoubtedly to the formation of agglutinines.

**Notes from the Children's Ward.**—The following is the substance of a clinical lecture by A. JACOB (*Medicine*, Aug., 1901). Case I.: Tuberculous peritonitis. A cure may result spontaneously and is facilitated by rest in bed and the use of guaiacol and iodide of potash. Cod-liver oil and good food should be given, ascites removed, and if these measures fail, a laparotomy should be performed. Case II.: A boy with headache, frowning, delirium, rigidity of the neck, and enlarged pupils that do not contract. One symptom of cerebrospinal meningitis, Trousseau's, is absent. This is the anemia followed by hyperemia on drawing the finger over the skin. In this case acute rheumatism must be thought of, and salicylates administered, for many such cases are taken to be meningitis. Case III.: Endomyocarditis in which strychnine failed to produce improvement, but when it was stopped and opium given in its place, the child improved. Codeine sometimes acts well in such cases. In a chronic heart trouble have the patient take digitalis and go to bed and rest a month or two, and at the end of this time renew the digitalis.

**Syphilis of the Liver.**—Following a discussion of the literature on syphilitic disease of the liver, MAX EINHORN (*Med. Rec.*, Aug. 17, 1901) classifies the tertiary lesions into gummata and cirrhosis, and either of these accompanied by acute or chronic icterus. Most cases have pains in the right hypochondrium, either constant or in attacks which may resemble gall-stone colic. There may be lack of appetite, frequent eructations, bad taste in the mouth, and constipation, or more rarely diarrhea. General malaise, restless sleep, moroseness, weakness and loss of weight are often present, but the emaciation is never so great as that of cancer. Acute icterus may be catarrhal, or due to temporary compres-



sion of the duct by a gumma. In chronic icterus, the duct is narrowed by gummatous tumors or scar tissue, or is involved by the connective tissue proliferation. The liver is usually swollen and uneven, round and hard nodules may sometimes be felt on its surface. In the more advanced stages amyloid degeneration appears. Enlargement of the spleen is frequent, but not constant; ascites may develop. The diagnosis cannot be made with certainty, for syphilitic cirrhosis resembles ordinary hypertrophic cirrhosis, but with a history of lues, and nodules in an enlarged liver, the diagnosis is probable and may be confirmed by antisiphilitic treatment. Iodide of potassium sometimes benefits an ordinary hypertrophic cirrhosis, though to a less extent. If nodules have lasted a year or two without marked loss of weight, it is probably syphilis and not cancer. Neusser believes that an increase of eosinophiles in the blood points to syphilis. An alcoholic gastritis accompanying a uniformly enlarged liver, argues for alcoholic cirrhosis. The prognosis is favorable if treatment is instituted before ascites, albuminuria, etc., have set in. The best results come from the combined use of inunctions of mercury and iodides internally; but anemia requires iron or arsenic, ascites requires puncture, and icterus may be reduced by glycerin, gm. 4.0 (5i) t.i.d., half an hour before meals. Alcohol must be forbidden, and proper diet and hygiene insisted upon.

**Blastomycetes in the Tonsils.**—The relation of the blastomycetes to abnormal tonsillar conditions has recently been investigated by E. BERTARELLI and N. CALAMIDA (*Ctblt. f. Bäk.*, July 18, 1901) who examined the tonsils of patients in otological clinics. They studied fifty tonsils of which twelve were normal and the remaining hypertrophied. In their work they employed greatly diversified culture media, as agar, potato-agar, gelatin of different reactions, and glucose and ordinary bouillon. The media yielding the best results were those of Casagrandi and some prepared from the juice of different fruits and agar. Some of these cultures were kept at incubator and others at room temperatures. They also studied tonsillar sections. From all their cases they were only able in four to isolate these organisms, none of which were pathogenic for guinea-pigs, save one in which the result was doubtful. In histological and pathological sections they were constantly found. They think that such finds do not explain the pathological conditions of hypertrophied tonsils and that it is very probable that they are only degenerative forms of these organisms whose presence is accidental and is of no significance.

**Pregnancy Following Myomectomy.**—Fourteen cases have been reported, with eighteen pregnancies, and nine healthy children born at term, writes J. N. WEST (*Med. Rec.*, Aug. 17, 1901). There were two stillbirths at term and six abortions, most at the third or fourth month. All these uteri had extensive scars from the enucleation of tumors, but all had normal presen-

tation, normal positions, and in only two were forceps necessary. In two cases gestation was complicated by a flow of blood or amniotic fluid from utero-abdominal fistulæ, which remained at the site of operation, but healthy children were born.

**Agglutination of Bacteria.**—The contention of Emmerich and Loew, that bacterial agglutination, particularly as applied to the bacillus pyocyaneus, and the sedimentation seen in old bouillon cultures are identical phenomena and dependent upon enzyme formation, has been strongly disputed. The most recent contribution to this subject is made by P. T. MULLER (*Ctblt. f. Bäk.*, July 18, 1901). He employed ten-day-old bouillon cultures of this organism obtained from two different sources. These contained an abundant deposit of organisms and also a large quantity of enzyme. The microscopical examination of this sediment in dilutions of from 1 to 1 to 1,000 showed no trace of agglutination. By heating these cultures to 55°-60° C., and thus removing the enzymes, he was enabled to produce agglutination of the organisms when brought in contact with a specific serum. He, therefore, opposes the view of Emmerich and Loew and thinks that agglutination is produced by substances formed in the animal body exclusively.

**Malaria in Honduras.**—The propagation of malaria by the mosquito is now an accepted theory, but here, 4,000 feet above sea-level, and far above the mosquito belt, J. H. EGBERT (*Med. Rec.*, Aug. 17, 1901) finds malaria of common occurrence. There is abundance of good water, excellent natural drainage and a salubrious climate. The author has been led to conclude, without microscopical investigation, however, that fleas are the agents which carry the infection. During the run of the fever, his treatment consists of quinine and acetanilid, with calomel or saline laxatives; for the subsequent disturbances he gives quinine and mineral acids, or Fowler's solution, with podophyllin or other hepatic stimulant.

**New Technic for Seeking Bacillus Typhosus in Water.**—Notwithstanding the great importance of water as a contaminating agent in typhoid infection the successful isolation of typhoid bacilli from drinking water is of comparatively rare occurrence. GABRIEL VALLETT (*Arch. de Méd. Experimentale*, July, 1901) points out that the chief obstacles are, first, the inability to examine a sufficient quantity of the water, and, second, the very frequent presence of the colon bacillus in such waters as contain the typhoid organism. The colon bacillus, by reason of its great vigor, survives the manipulations resorted to in most water tests, while the typhoid organism is destroyed. Particularly is this the case in the method of Péré in which passages through carbol-broth are employed as a part of the process. He recommends the use of the following new method: To 20 c.c. of the water are added four drops of a saturated, sterilized

solution of hyposulphite of soda and an equal quantity of a like solution of nitrate of lead. This forms a precipitate and clouds the liquid. Upon being centrifuged the supernatant fluid is poured off. Investigation has shown that this is practically sterile. The precipitate is then dissolved by a drop-by-drop addition of the soda solution. He then divides this in a series of tubes containing Elsner's potato-gelatin and "plates" in the ordinary way. Colon colonies develop in thirty-six hours, but typhoid often require three or four days. The organisms are then identified by the usual methods. This method has two advantages: (1) The examination of a considerable quantity of water; (2) the avoidance of any antiseptic action on the typhoid bacillus.

### THERAPEUTIC HINTS.

#### Urticaria.—

℞ Menthol ..... gm. 0.10 (gr. iss)  
Alcohol  
Ether  
Chloroform ..... aa 30.0 (℥i)

—GAUCHER in *Bull. Gén. de Thérapentique*, July 30, 1901.

#### Soothing-Draught.—

℞ Potass. bromid. .... gm. 2.0 (gr. xxx)  
Spt. melissæ ..... 10.0 (℥iiss)  
Syr. etheris ..... 30.0 (℥i)  
Tinct. valerian. .... gm. 3.0 (gtt. xl)  
Aq. ad. .... 120.0 (℥iv)

—BRISSEMORET in *Bull. Gén. de Thérapentique*, July 30, 1901.

**Anemia.**—A teaspoonful of the following mixture is administered four times a day:

℞ Euquinine ..... gm. 4.0 (℥i)  
Ferri lactat. .... 8.0 (℥ij)  
Liq. acidi arsenosi .... 6.0 (℥iiss)  
Tr. lavand. comp. .... 15.0 (℥ss)  
Elix. aurantii, ad. .... 120.0 (℥iv)

If considered desirable, strychnine sulphate may be added.—BLACKWOOD.

**Pambotano.**—This is a leguminous plant of Mexico, Senegal and Gabon, employed in malaria, typhoid, influenza, and other fevers as a succedaneum for quinine or cinchona. It is used in decoction, cc. 500.0 (Oj) of which may be taken in small doses during the day.—CALLIANDRIA in *Bull. Gén. de Thérapentique*, July 30, 1901.

**Bronchitis with Asthma.**—In children a few doses of the following are usually sufficient to relieve the dyspnea until another attack of bronchitis supervenes.

℞ Potass. iodid ..... gm. 4.0 (℥i)  
Liq. ammon. anisat. ... 2.0 (℥ss)  
Syrupi ..... 2.0 (℥ss)  
Aquæ q. s. ad. .... 90.0 (℥iij)

M. Dose, one teaspoonful every four hours.—A. CAILLÉ in *Pediatrics*, Aug. 15, 1901.

**Pericarditis with Effusion.**—When accompanied by rheumatic polyarthritis, the etiology is evident, and we give the nearest to a specific, viz.:

℞ Sodii salicyl. .... gm. 0.3 (gr. v)  
Potass. iodid. .... 0.12 (gr. ij)

Sig: Four times a day in water.

At the same time order rest in bed, a daily warm bath and fluid diet, and as soon as removal is safe, give the patient sunshiny country air.—AUGUST CAILLÉ in *Pediatrics*, Aug. 15, 1901.

**Spinal Anesthesia.**—The indications are advanced age, cachexia, pulmonary or renal disease, fear of general anesthesia on the part of the patient, simple operations on the lower limbs not suitable for local anesthesia, and in cases where one is without an assistant to administer an anesthetic. The contra-indications are operations above the umbilical level on account of the inconstancy of the analgesia in this region, operations on the abdominal cavity on account of possible vomiting, and the frequent necessity of the Trendelenburg or other position unpleasant to the patient, operations requiring absolute muscular relaxation, youth and nervous fear of operation.—VANNERTS in *Le Nord Médical*, Aug. 1, 1901.

**Puerperal Infection.**—Besides the usual symptoms of fever, rapid pulse, abdominal pain either spontaneous or provoked by palpation, changes in the lochia, etc., P. BUDIN (*L'Obstétrique*, July 15, 1901) recommends a digital examination of the interior of the uterus. In the normal uterus a few days after labor the internal os is firm and is penetrated with a certain effort. If, however, the uterine mucosa is diseased, it seems as if the muscular fibers were paralyzed, for one's finger is easily inserted into the cavity. One may also find there debris of clots, membranes or placenta, which give the finger a fetid odor. If the uterus contains only clots more or less odorous, and the uterine mucosa is smooth except at the placenta site, intra-uterine antiseptic injections will suffice. If the finger detects placenta or membranes, or if at the placental site pressure suffices to detach friable pieces, one should perform digital curettage followed by sponging. This curettage must be thorough, the bladder and rectum being emptied, and the abdominal wall relaxed under anesthesia. One or more fingers are inserted into the uterus, the outside hand holding the fundus, and the walls are scraped clean. Then an intra-uterine injection of bichloride, 1=4000, is given, and one or two sponges plunged in creosote-glycerin, 1-5, are inserted. Following this a vaginal douche prevents the caustic effect of the creosote on the vagina. If there is a noticeable bloody discharge, one or two tapes of iodoform gauze are introduced into the uterus for drainage. If the infection has lasted some time before this cleansing, the cure will be slow, and if the system is seriously invaded, active supporting treatment will also be necessary.



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SATURDAY, AUGUST 24, 1901.

## HOSPITAL MANAGEMENT.

AMONG the Chicago items in the MEDICAL NEWS for August 17th and in this issue are two to the effect that the internes at the Cook County Hospital have been absolutely forbidden to perform any major operation or high-forceps delivery even in the presence of the attending surgeon. The rule covers all operations in which an anesthetic is employed. Figure to yourself, as the French say, Wier, McBurney, or Hartley summoned to the hospital because a pelvic examination of a nervous patient requires anesthesia, or because of her refusal to allow the opening of an abscess, or a painful dressing, without it! The statement that the internes are up in arms is hardly necessary as such is the inevitable result of so sweeping an order.

It is to be hoped that the natural outcome of such short-sighted policy may be avoided by some modification of the rule. No hospital can reasonably expect to secure as internes the best class of men if they are to be treated as absolutely irresponsible beings. Such a course may work temporary good to the patients, but in the end must yield results inferior to those which would be obtained by more moderate restrictions. That

the interne is human, and often so anxious to secure an operation that he may occasionally leave some stone conveniently unturned in order to fail to secure the presence of the attending surgeon and thus accomplish his purpose, is not unnatural. And it has happened more than once that the patient has not profited by this circumstance. It is not necessary to leave this city to secure examples, nor is it difficult to find opportunities to study the cause and treatment of such a trouble.

Severity and sweeping restrictions inevitably result in insubordination and lack of interest of a house staff, frequently to dishonesty by evasive methods, and to eventual deterioration of the quality of men who are willing to fill the positions. The interne, presumably a man appointed after a fair competitive examination as the candidate best fitted for the position, is the servant of the hospital in return for the experience which it affords. In this position he is entitled to whatever knowledge he can secure without injury to its inmates, and absolute prohibition to perform major operations even in the presence of the attending surgeon robs him of his just dues. Furthermore, it turns out a prospective surgeon who will be obliged to secure his training by operating, without the advice and guidance of a more experienced man, upon what private patients may be unfortunate enough to fall into his hands. That the framers of unwisely restricted orders may learn their mistake by suffering by them is too much to hope.

No one can exert so strong a protective influence over the patients as the attending surgeon. There are few ex-internes in this city who have not learned that the higher the grade of work done by him the better will be that of his assistants, and that the man who is willing to respond to a call from them at any hour of day or night will be met more than half way. Furthermore it is not the attending surgeon who is generous to his assistants who loses the opportunity to perform an operation in which he is especially interested, through professed inability to locate him at the time. Not an interne but knows why a certain division is always chosen first when the operator upon another may be of equal skill. Nor is the surgeon who neglects his service and telephones to operate without him the most successful in securing the coöperation of his staff. On the other hand, one who considers that his assistants will learn more by watching him may be right in the early part of their course, if his

estimate of his own ability is correct, but a subsequent operation performed merely under his guidance is of infinitely more value than the privilege of being again an onlooker. The surgeon who will sacrifice himself by giving such personal instruction will lose nothing either in the quality and willingness of the service of his assistants or in their lifelong regard for himself and his professional ability. The hospital which rules its internes in this way is to be congratulated upon its sagacity and good fortune. And this is as true in New York as in Chicago.

#### BLOOD ALKALINITY AND MEDICATION.

ONE of the most striking things about the chemism of the human body, so far as we know it, is the uniformity of its processes despite the many and ever-varying factors that enter into it. The physics of the body involve practically the same mysteries, but we have become more familiar with them and they fail to appeal to us so strikingly. The maintenance of the human temperature at a cyclic constant between  $97.8^{\circ}$  and  $99.2^{\circ}$  F. is a most intricate problem in heat conservation and heat dissipation. With the surrounding air at a temperature of  $-70^{\circ}$  C., far below that at which alcohol solidifies, members of Polar exploration parties find their average daily temperature not below  $98^{\circ}$  F. Visitors to the tropics, under an equatorial heat at midday of over  $120^{\circ}$  F., do not find their temperatures in health above  $99^{\circ}$  F. The modifications of chemism necessary to maintain this constant temperature in the midst of external variations are extremely complicated, yet in spite of them the nutritional processes of the body remain undisturbed and are accomplished in just the same way as in the comparatively uniform temperature of the temperate zones.

With this consideration in mind it is not so paradoxical to find that the blood, despite alterations in metabolism, remains almost absolutely constant in certain of its qualities. Several years ago the English physiologist, Sir Michael Foster, pointed out that the alkalinity of the blood is one of its most uniform characteristics. The degree of blood alkalescence, for instance, cannot be changed by the administration of alkalis. Alkali substances which find their way into the circulation and which, if retained, would increase its alkalinity are promptly excreted by the kidneys. It has for many many years been a favorite therapeutic idea that the blood could be rendered more alkaline and thus certain diathetic conclusions de-

pendent on the presence of free acid in the blood relieved. While the theory of an acid diathesis as the basis of rheumatism has not in recent years met with the favor it gained in a preceding generation, most physicians have been ready to concede that some form of acidemia was the groundwork of gout. Sir William Roberts refuses to admit even this, however, and deprecates utterly the value of alkaline treatment in gouty affections.

Dr. Henrich Stern at the last meeting of the New York County Medical Society still further added to the complications of the problem of increasing or diminishing blood alkalinity by reporting the result of a series of personal observations on the relation between blood alkalinity and urinary acidity. It has usually been assumed that an increase of the alkalinity of the blood decreased the acidity of the urine and *vice versa*. In Dr. Stern's experiments, however, variations in the alkalimetric curve of the blood by no means corresponded to analogous changes in the urine. It is possible to have increasing urinary acidity while blood alkalinity remains stationary or is even diminishing. Dr. Stern showed also that the alkalinity of the blood was not a function of dietary variations and that alterations in the comparative intake of proteid and carbohydrate foods had practically no effect.

The degree of blood alkalinity in any given subject is dependent to a large extent on the individual. Different individuals even when perfectly normal have distinctly different degrees of blood alkalinity, just as they have varying types of metabolism. In a word, instead of a simple problem, whose equation can be varied by affecting certain factors, the alkalinity of the blood is one of the most complex products in the human economy. It is probably very fortunate that we have not been able to effect it as easily by drugs as has been thought possible. Micro-organismal growth may be encouraged by even slight variations in the reactions of such media as the blood. It is as distinct a step in advance, however, to realize that we can affect the uniformity of blood alkalinity very little as it was for the generation before ours to realize the futility of specific medication. It is not the employment of specific drugs, but the care of the individual patient in the many details of his affection, that constitutes successful therapeutics. It is not the production of gross changes in the important circulating media, blood and lymph, that we can hope to employ for curative purposes. The problem of successful treatment for disease



or diathesis is never as simple as that crude notion would seem to imply. Therapeutics is, and must be of its very nature, essentially individual in character until we know something more definite about human chemism and the intricate factors that enter into it in health and disease.

#### SUBSTITUTION: A MEDICAL EVIL.

FROM the eagerness of the proprietors of patent medicines to call the attention of the public to their "blue label" or "white seal," or "signature without which none is genuine," we are led to believe that there must be a large number of people in this world who believe that imitation is the sincerest form of flattery, and who devote their whole lives to preparing something "just as good" for the consumer. It is a little startling to have our vague ideas corroborated, and to know that there are large manufacturing concerns that put up nothing but imitation medicines, drugs, flavoring extracts, everything from the synthetic oil that passes for orange phosphate in cheap soda-water fountains to the inactive scopolia root that is substituted for belladonna.

The manufacturers of proprietary articles are perfectly justified in their strenuous efforts to warn the public against such impostures, for it is not merely a question of another man pocketing the dollars that ought to recompense them for their advertising and labor, it is a question of reputation. Even a patent medicine has a standard of efficacy that must be maintained. But while its imitator runs the risk of law-suits, the second-rate druggist busies himself with inferior drugs, and cheap chemicals and no one seems to know the difference.

We physicians hardly realize that substitutions and adulterations are as diligently worked off on us and our patients as in the patent medicine field; that non-official leaves are ground up with official leaves, that tinctures are made from fluid extracts instead of from fresh drugs, and that old weather-beaten drugs are sold in the market for use in the preparation of potent remedies.

The high class pharmacists of the large cities are so wholly above reproach that we would depend on their testimony rather than on our own in deciding about the purity of the drugs used; but who of us whose prescriptions every day are filled up-town and down-town, in the suburbs and in neighboring cities, have any guarantee that they are filled in such a way that they will have the strength and potency that we in all good faith prescribe?

The United States Pharmacopoeia is the official code which determines the strength of all preparations and on it the profession base their prescriptions, but it is a startling fact that although the last twenty years have been the most brilliant in research work in the physiological reaction of drugs, yet far too many pharmacists are using the Pharmacopoeia of 1880, if they use any at all, the edition of 1890 not having as yet gotten past the minority.

We may not take the matter of substitutions quite as seriously as do our friends who dispense drugs under their signatures, but we certainly ought to treat it more seriously than we do; for our reputations as well as our patients will undoubtedly suffer. That we permit the state of affairs to exist at all is due to the very widespread carelessness mingled with the trustful ignorance with which we put our prescriptions in our patient's hands, not knowing where or how they will be filled.

#### ECHOES AND NEWS.

##### NEW YORK.

**Brooklyn Eye and Ear Hospital.**—The recent annual report of this institution shows that it is in a flourishing condition. During the past year there were treated 14,883 cases. Of these 9,199 were diseases of the eye; of the ear, 3,110; of the throat, nose and skin, 2,327; of the nervous system, 247. The total year's income was \$16,000. The erection of a new hospital building is under contemplation.

**Registration of Tenement Houses.**—All property owners in Brooklyn have recently been notified that they must report their houses as tenements if they contain three or more families. A failure to do this will be punishable by a fifty-dollar fine. In order that no injustice may be done no fines will be imposed until after September 6, 1901.

##### PHILADELPHIA.

**Invalid's Long Fast.**—A rather remarkable case of fasting is reported from Emlenton. Mrs. Jane Lynn, who had been an invalid for years, died August 12th after taking absolutely nothing except an occasional glass of water for fifty-five days. During sixty-one days she had only one ounce of food.

**Pest-House Torn Down.**—The smallpox pest-house erected on the Bowen estate near Schuylkill Haven has been torn down by the heirs who say that permission to build had not been granted. The County Poor Directors settled the matter by giving a site for the proposed hospital.

**Donation to York Hospital.**—A citizen who wishes his name withheld has donated

\$40,000 to the York Hospital, the money to be paid after his death.

**Sentence of Malpractitioner Reduced.**—Joseph Heppenstall alias "Dr. Heppe" or "Dr. Hill" was recently sentenced to four years in the penitentiary for causing the death of an infant by criminal malpractice, the infant dying six hours after its birth in the Philadelphia Hospital. Later the sentence was reduced to two years.

**The Regulation of Hospitals.**—The institution known as the "Prince of Peace Hospital" has lately been the subject of investigation by a Coroner's jury, the death of an infant being the subject of inquiry. Testimony revealed the fact that the institution has been in operation for two years without a license, although some patients in the lying-in department had been obtained by advertisement. At the last meeting of the Legislature an institution in the city asked for \$40,000; inquiry revealed the fact that it had not even a resident physician. The condition of affairs is well expressed by the *Ledger*, which, in commenting upon the first case, says: "The incident fairly suggests the comment that has often been made heretofore, that numerous institutions of a charitable or semi-charitable character are organized, often by well-meaning persons, when there is no pressing public necessity for the institution, and which cannot be adequately supported without State aid. They belong to the class which the State Board of Charities designates as those which are controlled by individuals sometimes assisted by grants from the State." There is reason to believe that many so-called charitable institutions have been founded not to meet a pressing and obvious need of the locality, but eventually to secure State aid for what may be called hospital promoters."

**Physician Made Prominent by Strike.**—Dr. Robert J. Black, Mayor of McKeesport, is probably the most talked-about physician in the United States at present, his proclamation regarding the participants in the steel strike being the subject of comment. Mayor Black has a rather unique and enviable history. For twenty-five years he has been practising medicine in McKeesport, but has accumulated no wealth because he is the "poor man's" doctor. He visits the worst sections of the city and no man is too poor to get him out of bed any hour of the night. Black fights the United States Steel Corporation and hence was bitterly antagonized by it and the politicians when he was running for mayor. The poor people of the town remembered his kindness and they elected him by a majority of one vote against all opposition.

#### CHICAGO.

**To Analyze River Water.**—To checkmate the secret investigations of St. Louis experts into the character of the water in the Chicago River, the Sanitary District Trustees have made plans for a new series of observations and analyses of river water. Four St. Louis chemists have

worked two weeks on samples of water from the mouths of the sewers and are now moving down stream. The Trustees will follow them at every point and duplicate their former observations in order to prove, if necessary, that the water does not vary in quality with the seasons. Judge Springer of Washington, Attorney-General Hamlin, Special Counsel John J. Drennan, and Dr. Frank W. Reilly of the Health Department have met with the Trustees. St. Louis has spent \$35,000 thus far for evidence and has \$40,000 available still. The Drainage Board has only spent \$18,000 on this line.

**Epidemic in Evanston.** It is said that Evanston has an epidemic of scarlet fever and diphtheria. Within the last few days fifteen new cases have been reported to the Health Department. Most of the cases are from the southern wards of the city. Health Commissioner Parkes is at a loss to account for the outbreak, but believes the epidemic was caused by children bathing in the lake near the mouths of the sewers, and he will take steps to prohibit all bathing in certain places.

**Typhoid Fever and Malaria Prevalent.**—It is said that these diseases are epidemic in the nineteenth ward. So general have these diseases become that the Nineteenth Ward Improvement Association has issued a warning bulletin on insanitary conditions. Visiting nurses from Hull House are taking care of more than 30 patients at the present time. Dirty streets, filthy alleys, impure water and milk and unwholesome foodstuffs, vegetables and fruits, combined with crowded tenement conditions, are said to be among the causes which started the epidemic. Of these evils, the filthy alleys are the most injurious to the health of the public. A committee will be appointed to see that the garbage law is enforced. Steps will be taken to have a more rigid inspection of vegetables and milk sold in the district.

**Appointment of Dr. Root.**—Dr. Eliza H. Root has been appointed Dean of the Northwestern University Women's Medical School.

**The Limitation of Internes.**—In a previous issue of the MEDICAL NEWS we referred to the fact that on account of complaints of improper operating by internes at the Cook County Hospital, a rule was put into effect August 1st, that hereafter all major surgical operations must be performed by one of the attending staff. In answer the internes, through a committee, composed of Drs. J. Friedman, J. F. Howard, A. Foerter, O. R. Goldsmith, J. F. Hultgen, have issued the following statements: "(1) *Whereas*, it has been stated that we are but students, learning our trade at the expense of county patients, we emphatically deny this. Every one of us has graduated from a reputable school, has passed the State Board examination and is entitled thereby to practise medicine and surgery in this State, and is selected under Civil-Service rules, by passing successfully an examination in medicine and surgery given every year, competitive



in character, and held under the most rigid and impartial rules that govern any examination whatsoever. Such qualifications are not picked up by the wayside, but gotten only by constant application, by the expenditure of a great deal of time and money. Moreover, every interne in this Hospital has had a college training before starting in the study of medicine. (2) *Whereas*, it has been alleged too much and unnecessary operating has been done by internes. We point out the fact that no operation, at any time, has been performed until after a complete examination by a member of the attending staff, under his direct control and supervision. There is no authentic case in the hospital in which a patient was anesthetized without the presence of an attending physician or surgeon. (3) *Whereas*, considering the qualifications necessary to become an interne, and the fact that every senior interne has served twelve months in preparing for surgical work, it is justly evident that we should be regarded competent to participate adequately in the care of patients. Such privileges are enjoyed by internes of every other hospital in this country and abroad. (4) *Whereas*, . . . It appears as if there were friction between the hospital management and the internes. We assure you that there is nothing but good will between Warden Healy and the house surgeons."

**Resignation of Dr. Corwin.**—Dr. A. M. Corwin has resigned from the faculty of Rush Medical College as instructor in the department of diseases of the chest, throat and nose.

#### GENERAL.

**Offer of Mr. Slimmer.**—Abram Slimmer of Waverly, Iowa, has offered \$5,000 to the Chicago Lying-in Hospital, if an additional \$10,000 can be raised.

**Mosquito Test Fatal Again.**—It is reported that two of those who consented to be bitten by inoculated yellow fever mosquitoes in Havana have died.

**Diplomas at Only \$10 Each.**—Three weeks ago Chief-of-Police Benjamin Murphy of Jersey City was informed that the Central University of Medicine, located at 68 Montgomery street, and managed by J. W. Norton-Smith, was doing an illegitimate business, the nature of which was not stated. He made an investigation, but Mr. Norton-Smith denied that he had carried on any business in Jersey City. He said he conducted business by mail only, and would answer no questions except by mail. As Chief Murphy could find no one who had been swindled, he concluded that he had no authority to make an arrest. He informed Prosecutor Erwin and United States Commissioner Linsley Rowe, who approved his course.

**Obituary.**—Dr. James A. Williams, for more than thirty-five years a practising physician of New York, died on Thursday at Armonk, Westchester County. He had been in failing health for more than a year, but hemorrhage of the brain brought the end suddenly. Dr. Williams

was born in Sinking Springs, Ohio, sixty-one years ago. He was graduated from the Rush Medical College, Chicago, Ill., in 1861, and from Bellevue two years later. He entered the army as a surgeon, and was advanced to the rank of major-surgeon, being the youngest in the army to hold that title. Dr. Williams left a widow and daughter. To the latter, Miss Nellie Williams, was presented a gold medal by the United States Volunteer Life Association in April, 1900, for saving the life of her friend, Miss Harris, while bathing at Long Branch. Funeral services were held in Greeneville, Greene County, N. Y.

Dr. James Howard, Jr., of Masontown, Pa., a graduate of Jefferson Medical College, Philadelphia, was dragged to death by a runaway horse at Fairmount, W. Va., August 19th, where he was spending the summer with his brother, E. W. Howard. He was returning from Barnsville, a nearby town, where he had made a professional call, and his horse became frightened. Dr. Howard attempted to jump from the carriage but his right foot caught in the wheel and his head struck the ground. In this position he was dragged 100 feet. When the horse stopped, he was dead. He was twenty-three years old and a son of Dr. James M. Howard. His remains were sent to Masontown.

#### CORRESPONDENCE.

##### OUR LONDON LETTER.

(From Our Own Correspondent.)

LONDON, August 10, 1901.

THE TUBERCULOSIS CONGRESS—PROPOSED INSTITUTE FOR THE STUDY OF TUBERCULOSIS—OPPOSITION TO THE CRUSADE AGAINST CONSUMPTION THE SECRETARY-GENERAL OF THE CONGRESS AND HIS DIFFICULTIES—MR. BURDETT-COUTTS AGAIN ON THE WAR-PATH—THE TRUE INWARDNESS OF HIS CAMPAIGN AGAINST THE ARMY MEDICAL DEPARTMENT.

THE Tuberculosis Congress is already well nigh forgotten, with the exception of Koch's sensational pronouncement which has sunk deep into the public mind. Sanitary authorities are making it an excuse for persistence in a policy of masterly inactivity in regard to the supervision of the meat and milk supply, and antivivisectionists are using it as a new argument against scientific research. I mentioned a rumor that Koch had been put up by the German Government to curse all legislation against purveyors of tuberculous foodstuffs; but though he may have been the spokesman of a clique, it is clear that he did not speak for the Government, for an order has been issued by the Public Health Department that there is to be no relaxation in the stringent laws now in force. It is probable that our Government will order a fresh investigation of the whole subject. We have already had two Royal Commissions on Tuberculosis, and the question of the

ineffectivity of diseased meat and milk was thought to have been definitively settled by the experiments of Sidney Martin. These are in direct contradiction to those of Koch, and as the preparation on which both these investigators based their conclusions were exhibited in the Museum, which was the most interesting part of the Congress, those present had an opportunity of studying the evidence on one side and the other.

It is not unlikely, by the way, that a permanent Institute for the Study of Tuberculosis may be an outcome of the Congress. The scheme has already, I am told, very influential supporters and the time seems to be ripe for its accomplishment. Of course, there will be opposition from some of the high priests of the Temple of Medicine who have persuaded themselves that tuberculosis is a *mare clausum* in whose waters they alone have the right to fish. From such men the organizers of the Congress had to encounter much opposition, all the more difficult to meet that it was mostly of an underhand character. The fact is that the crusade against tuberculosis is viewed with suspicion and dislike by a small, but powerful party in the College of Physicians, most of whom are connected with the Brompton Consumption or similar institutions. Their objection to the crusade is professedly based on its public character, which they affect to think degrading to the medical profession. The real objection is that the initiative did not come from them. Of this, however, they cannot justly complain, for they have had every opportunity of doing something for the repression of a national scourge, and it is their own fault that they did not avail themselves of it. Like the House of Lords in one of Gilbert and Sullivan's operas, they "did nothing in particular, and did it very well." Now that, owing to the impulse given by the *Practitioner*, a popular movement for the stamping out of tuberculosis has been set on foot, and is daily gaining ground, the high and mighty persons who ought to have taken the lead naturally find the time out of joint and are virtuously indignant that they have lost the chance of putting it right.

Great credit is, I think, due to Mr. Malcolm Morris to whose energy and tact the success of the Congress is very largely due. He had many difficulties to overcome, and the Congress had to be steered among sunken rocks and shoals—scientific, financial, and social—where a failure of nerve or a faulty movement meant wreck. The jealousy of some of the men from big provincial towns, where people's manners have not the repose that marks the race of Vere de Vere, showed itself in downright rudeness. It was curious to hear men of science actually denouncing the officials of the Congress for having allowed Koch to deliver his address. Truly if the hierophants of science were to have things all their own way, the *régime* of the Holy Inquisition would be mild compared with theirs. In respect of intolerance theologians cannot hold a candle to scientific men. Malcolm Morris is therefore to be congratulated on having escaped from his persecutors: he in-

tends, I believe, to seek rest in America where he is to deliver the Lane Lectures at San Francisco.

Now that the Congresses have ceased to trouble and organizing secretaries are at rest, we enter on the dull season. All the leading physicians and surgeons are out of town, and Harley Street and Wimpole Street are, in a medical sense, deserted. Deputies do indeed sit at the receipt of custom in place of the oracles who have left their shrines, but business is not brisk. There would be nothing at all to trouble the serenity of the sky, but for an unfortunate accident which has given Mr. Burdett-Coutts an opportunity of going on the war-path again. At the annual meeting of the British Medical Association, held recently at Cheltenham, Sir William MacCormac in speaking of the surgery of war referred to amateur critics who had no idea of perspective and exaggerated everything. The veiled reference was transparent enough, and a newspaper dotted the i's by putting in Mr. Burdett-Coutts's name. That gentleman at once replied in a column and a half of the *Times* in which he repeats his charges against the conduct of the Army Medical Service in South Africa, and indulges in characteristic self-glorification. He tells the world that he struck hard at a deadly sham, and it tumbled to the ground! The effect of his eloquence he says was "miraculous," for "within a week . . . a transformation scene . . . was effected in the military hospitals in South Africa." If we are to take this as a true account of the matter, the word "miraculous" is not at all too strong; for if hospitals in which, according to Mr. Burdett-Coutts's own showing, everything was wrong were put to rights in a few days, a transformation so instantaneous as he describes could have been effected only by a miracle. But miracles, as Matthew Arnold so persistently repeated, do not happen; we are therefore driven to believe that Mr. Burdett-Coutts does, at least occasionally, exaggerate.

I refer to this matter here chiefly in order to correct any wrong impression American readers might get from the utterances of an indefatigable notoriety-hunter. Here, though he tickles the ears of the groundlings, he makes the judicious grieve. The Medical Service has, it is generally admitted, done better than any other branch of the Army in South Africa. Its shortcomings are attributable almost entirely to the War Office which, though warned over and over again that a breakdown must inevitably take place unless a different policy were pursued, persisted in doing everything possible, as of malice aforethought, to cripple its efficiency. It has done and is doing its work on the whole thoroughly well under every disadvantage, and a scheme of reform is now under consideration which will remedy most of the defects in its organization and positions that have hitherto prevented men who had any prospect in civil practice from entering the service. Here we quite understand what it is that leads Mr. Burdett-Coutts to play the part of a "wretched, rash, intruding fool" in this matter.



He saw an opportunity of self-advertisement, and thought he would be able to pose as the reformer of the Medical Department. He has been ignored by the Government; hence those tears—and curses!

#### TRANSACTIONS OF FOREIGN SOCIETIES.

German.

##### CARCINOMA UTERI.

W. A. FREUND (Berlin), at the Ninth Congress of the German Society of Gynecology, at Giessen, May 29-31, 1901, read a paper on the subject of the radical operations for carcinoma uteri, with special reference to its permanent results. The possibility of a permanent cure of this affection is presented by two experiences of Freund, namely, a woman who was still well seventeen years after an operation for a recurrence in the body of the organ after an amputation of the cervix for a cancerous node, and another woman who had no sign of recurrence twenty-three years after a total extirpation for cancerous foci in the cervix and fundus. "*Ut concuram curare, sic eum definire perarduum est.*" As to the cause of carcinoma the author is inclined to take sides with the theory of Virchow who claims that irritation is the factor and to assume a waiting attitude as to the more recent theories concerning the elements at work in this disease. Metastatic deposits by way of the blood-channels are very rare in uterine cancer and involvement of the lymphatic glands is relatively a late complication, especially when the parametrium is not affected by contiguity and only in one-third of the cases when it is. This position he holds contrary to the teachings of Wertheim. In cancer of the cervix extension usually occurs sidewise through the parametrium and finally approaches the tissues about the rectum in the hollow of the sacrum. Inoculation recurrence is naturally after operation only possible under the theory of the essential infectiousness of cancer. These facts all plead prompt operative interference. The new century must necessarily bring toward final settlement the vexed question as to the choice of methods of approach. In general terms the more fully in view a field is, the better. Therefore the abdominal route is by far the best. Contrary to the general attitude of the German surgeons, the British surgeons are coming to the stand that the operation for uterine cancer is of limited application. Unfortunately the statistics on this subject give us little aid at present.

WINTER (Königsberg) read a paper on the question of the radical operations and enumerated as the chiefly available (1) supravaginal amputation of the uterine cervix; (2) vaginal total extirpation; (3) abdominal total extirpation; (4) radical abdominal operation. A very particular advance over the earlier methods of treatment is offered by the radical abdominal operation which permits not only a thorough clearing away of the parametrium, but also a removal of the lymphatic

glands. These glands have been found to be diseased in from 35 to 50 per cent. of the cases. Up to the present we have 134 records of this radical operation with a mortality of 24.6 per cent., of which 18 were by infection and 12 by late collapse.

SCHAUTE, WERTHEIM and WINTER have each seen a fatality in this operation result from necrosis of the ureters. Therefore it is advisable not to loosen these too widely and too roughly from their beds in the retroperitoneal connective tissue. It is interesting to note that Winter usually ablates the uterus through the vagina. If, indeed, it is too large to permit of this step, he amputates the uterus just above the cervix with the Paquelin cautery and then ablates the stump of the cervix through the vagina, together with any possibly affected vaginal wall. This process Wertheim shortens by clamping the vagina just distal to the cervix and then when all is away uniting the peritoneal wound over the free end of the vagina. Winter hopes that progress will be made not through extensive operation, but through early diagnosis and promptly undertaken interference. He closed with a plea for fair-minded and truthful statistics.

KUSTNER (Breslau) discussed the abdominal approach to the uterus and by means of charts showed the distribution of the lymphatic channels. His position is that although the theoretical considerations are on the side of the abdominal operation, the vaginal route has by far the best statistics and appears to be a much less fatal method. The peritoneum must as far as possible be kept out of all contact with the carcinoma. The procedure of Veit seems to offer alike the best records and the best method of avoiding any poisoning of the peritoneum and consists chiefly of beginning the operation above and finishing it below. When the uterus is deeply sunken into the cavity of the pelvis, it is best not to close the peritoneum after having taken the uterus out by the vaginal route. Küstner takes two strips of gauze and sews them carefully to the uterus just before it is removed so that while they traverse the wound they cleanse it. He regards as more important full protection from the carcinomatous pus than the ablation of remote lymph-nodes. He also holds that probably in the future we will remove affected segments of the bladder and ureters.

#### SOCIETY PROCEEDINGS.

##### BRITISH MEDICAL ASSOCIATION.

(Continued from page 275.)

##### SECTION OF PSYCHOLOGICAL MEDICINE.

Asylum Administration.—Dr. J. B. Spence read this paper in which he brought out the differences in the treatment of the insane as they existed in the earlier years of the century and the conditions found at the present time. To Tuke, Conolly, Brown, Mauds-

ley, Clouston and others have been due this progress in the amelioration of the condition of this type of diseased humanity. To some of these have been given gifts the exercise of which has enriched the pages of literature with the result of their researches; to others the more humble but perhaps hardly less useful talents for organization, for planning suitable accommodation for the various classes of the mentally ailing, and the capacity for paying attention to the numerous small details which in great measure go to make up the sum of human life, and which tend materially to promote the comfort and happiness of the individual and benefit the insane mind by ministering to the bodily wants of those who are so afflicted.

**Lay Management.**—He further said: "I heard it said not long ago that there was a feeling abroad in favor of lay management of our large asylums. Well, to those of us who have lived long enough this is nothing new. Ideas occur in cycles, and what to the experienced is but the repetition of an oft-exploded theory comes to those who are new to the subject, and who have not given it much consideration, as something which, to put it at its lowest, merits at least a trial. It does appear to me that in few other positions is the combination of the medical man with the good organizer so necessary as at the head of an establishment in which the treatment of the inmates is not purely medical nor purely reformatory nor merely curative, but where many methods must be employed if ultimate success in dealing with the variety of types which come under our care is to be looked for. The day is past for the expression of the cheap sneer involved in the story of the hypothetical superintendent who, when asked to see a patient, excused himself on the ground that he had just been urgently summoned to the farm where his favorite sow was littering and must be visited at once. If one desired to do so it would be possible to tell an equally good, and in all likelihood an equally untrue, story which might place the scientific side of our work in as false a light, but it is not my wish to decry, even in a joking fashion, good work of any kind, my only desire being to emphasize the point that the argument which has been brought forward in favor of lay government, and which is expressed by the statement that a doctor should stick to his work and leave the management to those who are supposed, often erroneously, to know more about it, is an incorrect one, as the main objects of an asylum—namely, the cure, care, and comfort of the patients, would be thereby frustrated, for all these can only be successfully carried out under the supervision of a man who, to the groundwork of medical training has added the experience which he, being presumably a cultured individual, is at least as capable of acquiring as the man who has

merely served in an office or behind a shop counter."

**Large Asylums Not Desirable.**—"It is in this connection that I so regret the establishment of the huge asylums to which unhappily use is accustoming us. In the medium-sized asylums there is just that amount of work which any man who is worthy of his position should be able to supervise with due attention to the various departments into which the establishment must necessarily be divided, and where the one governing mind can so utilize the means of treatment placed at his disposal that whether the individual patient—known to the chief by name, by disposition, in his family relationships, in his special characteristics, and in his necessities—requires medical or moral treatment, the care of the sick room, or the exercise of the garden or farm, the quiet of the cosy ward, or the stimulating effect of the workshop, each can be brought into play without the risk of producing that friction which practical experience has shown to be not infrequently present when more than one controlling influence is in operation. As a question of expense, I have yet to learn that the medium-sized asylum is more costly in its management than the large establishments which, while they excite the wonder of the inexperienced, produce only feelings of regret in the minds of those who have to govern them. Nor have I had it proved to me that better results have been produced either in the treatment of the insane individual himself with regard to promotion of his recovery, the increase of his comfort when in fair bodily health, or his treatment when attacked by illness, physical or mental."

**Separate Treatment of Dements.**—Dr. Pearce was outspoken in praise of the movement now to be put in practice in this country of making special provision for the demented insane. These do not require the same amount of care as the acute insane and the agricultural colony system is an ideal one, although it is true that even the individual lowest in the scale of mental degradation can appreciate the bright and comfortable surroundings of the average county asylum. But when all is urged that can be brought forward to support this side of the question, the opinion is justified that while no expense should be spared to provide the necessary appliances and the most favorable environment for the curable, yet in a distinctly appreciable proportion of the incurably insane and the mentally deficient, a kindly, judicious, and truly philanthropic system of treatment might be adopted without loss of benefit to the class in question, and at a much reduced cost to the long-suffering ratepayer.

**The Acute Insane.**—As to the form in which accommodation should be provided for those suffering from mental disorders of a curable nature, it is a distinct advance that the trend



of educated opinion in this country is in favor of segregation, and all alienists are looking forward with interest to the result of the experiment which has been taken in hand by the East Sussex County Council, and by the authorities whose duty it is to provide accommodations for the insane poor of Edinburgh and Aberdeen.

**Laboratory Methods.**—The opening of an experimental psychological department in connection with the well-known pathological laboratory at Claybury is one more evidence of the interest taken in the work of the alienist by that progressive body, the London County Council, and the establishment of central laboratories in connection with the county asylums should open out a wide field for investigators who would be able to devote their entire time and energy to the study of the origin of the various mental disorders met with in practice; so that, while a glance backward reveals how much has already been done in the direction of clearing away some of the doubts which have been from time to time suggested as to the curability of insanity, one may look forward with hope to the coming century as a period during which, to put one's anticipations at the very lowest, much may be effected in the direction of prevention, even if the cure of sufferers from chronic mental disorders must remain—as in the case of many who are afflicted with bodily diseases—subjects for that humane care and attention which is the daily, trying, but noble work of many physicians.

**Toxins in the Pathogeny of Insanity.**—Dr. Ford Robertson opened a discussion on this subject in which he spoke more particularly of the relation of general paresis to metabolic toxemias. In general paresis gastro-intestinal disturbances are very common. Chronic trophic catarrhal processes of the intestinal canal are very widely present and in consequence there is deficient metabolism and toxin formation, which toxins are absorbed by the lymphatics and thus enter into the general circulation. They contribute largely, he thinks, to the damage done to the cerebral tissues, both nervous and vascular. Special importance was attributed to syphilis, alcohol, auto-intoxication and auto-infection from the gastro-intestinal tract in producing just such lesions. The disease in which such action is manifest are the various manifestations of arteriosclerosis, senile insanity, paresis, locomotor ataxia, alcoholic insanity, dementia, acute and chronic mania, melancholia and chronic Bright's disease. The larger number of cases of insanity are not primary diseases of the brain, but are due to the action of toxins in the cortical neurons by disordering their metabolism and often permanently damaging and even destroying large numbers of them.

**Treatment of Neurasthenia.**—Dr. A. Schofield included under this term the general

neurasthenic diathesis, hysteria, etc. In their treatment the most important factor was the personality of the physician. In regard to hysterical diseases it was important for the physician to bear in mind that diseases of the imagination are not imaginary diseases. Hysteria and neurasthenia, he thought, both arose from disorder of the subconscious mind. Sexual excesses were important and needed careful treatment. Open air and careful dietary were necessary. Neurasthenia was more benefited by rest than by exercise; overfeeding was important. Hypnotism, he thought, was of doubtful service. After convalescence the patient should not return to his old surroundings and habits, if possible.

**Anthropometrical Examinations of Asylum Patients.**—Dr. E. Goodall read a communication embodying many of the ideas of the French and Italian anthropological alienist devotees, in which he advocated the taking of such measurements as a routine for the asylum work.

**Puerperal Insanity.**—Dr. Robert Jones of Claybury opened a discussion on the subject, in which he said that in one in 1,700 confinements insanity developed in the mother. This condition was four times more prevalent following illegitimate births. Of the cases at Claybury 269, or 7.4 per cent., had had puerperal insanity. The commonest type was marked by delirium with hallucinations and mingled with religious and erotic excitement. The prominent symptoms were insomnia, headache, restlessness, apprehensiveness, auditory and visual hallucinations and dangerous impulses toward suicide and infanticide. Treatment was by generous feeding, electric baths, and hypnotics. Relapses occurring during convalescence are of bad import.

**Physical Basis of Melancholia.**—Dr. John Turner read this paper. Certain of the nerve-cells of the cortex, he said, present an alteration in appearance in many cases of melancholia and dementia (alcoholia). The change is similar to that which follows when the axons of the fore horn cells or those of the pontine nuclei have been severed. But examination of the axons (in the cord) shows that in melancholia the change is not produced primarily by interference with the axons. The change has also been noted in melancholia by Wigglesworth and others. The distribution of the lesions were as follows: The pyramidal and giant cells of the so-called motor cortex show it most clearly; in this region most of the cells being affected. It is commonly met with in the frontal and occipital regions, especially in the large cells of the latter. Of all the nuclei examined in cross sections of the medulla oblongata-hypoglossal-vagus-lateral, ambiguous, gracile, and cuneate, only the first escapes, all the others show the change affecting generally the major proportion of the cells. In the cord the cells of Clarke's column are



early affected and ultimately in advanced cases the forehorn cells. In the posterior-spinal ganglia, while only a few cells show the change, many are altered in another way—densely stained and very shrunken. In the tracts of the cord only in very advanced cases is there any sign of degeneration of the myelin sheaths, and then it is the crossed pyramidal tract (axons of motor cells of cortex) which is affected. The pathological observations indicate that the cause which brings about this change is not a general one, operating on all parts of the nervous system, such, *e. g.*, as a perverted state of the blood, otherwise we should expect to find all the cells of a similar type participating in the change. This, as has been shown, they do not. Another point brought out is that the change early affects cells, and notably those of Clarke's column. The experiments of Warrington show that this change can be produced in the cells of Clarke's column by division of the posterior roots, and he assumes that in this case it is due to depriving these cells of the ingoing stimuli normally passing to them. Thus it has been established experimentally that this change can be set up in at least two ways, namely: (1) By agents having a destructive action on the axons of the cells in question (traumatism, and probably also alcohol), and (2) by agents which do not primarily affect the axons of the affected cells. These observations indicate that the melancholic cases fall into the latter class, and, further, that the state of the mind is an essential factor in inducing the change. The deprivation of the nerve-cells of their normal ingoing stimuli is the explanation offered in accordance with the writer's hypothesis that melancholic states depend on dissolutions of the nervous system affecting the sensory or ingoing section of the nervous reflex mechanism. Clinical observations from Griesinger and others are also given in support of this contention, notably the very general occurrence of anesthesia in melancholia.

#### SECTION OF DISEASES OF CHILDREN.

**Treatment of Intussusception.**—Dr. B. Pitts of London gave an analysis of all the cases occurring in surgical wards of St. Thomas' Hospital from 1875 to 1900. He pointed out that distention of the bowel might be tried, if the case was very recent, under an anesthetic and holding oneself in readiness to do an abdominal section, if necessary, at once. A severe case should at once be explored, without any previous inflation, as this only added to the shock. The intussusception should be brought outside the wound, as then the condition could be examined. If reduction were impossible resection of the bowel should be done. If gangrene were present the case was almost hopeless, as prolonged operations were not well borne by children. The sooner the child was

placed in the hospital after the symptoms appeared the better. At the first onset it seemed reasonable to inflate the large bowel, but it was never certain that inflation completely reduced the swelling, and the uncertainty as to the exact condition of the bowel made it better for the surgeon to see and to handle it. The swelling of the mesenteric glands which occurred in children in intussusception, hindered reduction. Inflation might be used as a preliminary to operation. The risk of shock must be minimized by all possible means in a young child. It was better not to let the small bowel escape out of the incision, so if there were very much distention he would make a small opening into it and let out the contents—*i. e.*, gas—and then sew it up. A great danger of reduction was the chance of splitting the coat of the bowel. If reduction were very difficult he would open the sheath and reduce by a finger inside the bowel. If this were impossible he would resect the bowel *in situ*. He then referred to a diagram of a case of ileo-colic intussusception where the portion inside the colon was removed, and to another where there was invagination of the appendix. In a third case the small bowel was implanted into the large one above the old ileo-cecal valve. In a gangrenous case twenty-four inches of bowel were removed. Saline injections were of great service. The suturing of the abdominal wound should be very thorough and the stitches should be left in for a long time so as to have no prolapse of the intestines. According to the list of cases chronic intussusception was quite rare in children. In fatal cases the temperature frequently ran up at once after operation to a great height from no very certain cause. In cases brought to hospital it was better to operate at once and to try inflation also so as to get the bowel back to near where the incision should be made. In gangrenous cases the ends of the bowel should be brought outside the body and continuity should be established later. If very extensive, resection and restored continuity with Paul's buttons should be done at once.

**Acute Specific Fevers.**—Dr. Foord Caiger opened this discussion. He advanced a provisional classification of specific fevers based on a recognized similarity in their clinical aspect during the early period of illness. In this way a group was obtained characterized at an early stage by catarrh of the naso-respiratory tract, and by pyrexia, the group including measles, rubella, the ordinary febrile cold, and whooping-cough. The frequency of occurrence and diagnostic significance of Koplik's spots was alluded to and the spots themselves minutely described. Dr. Caiger considered them of absolutely certain import when found, but he had not found them present quite as often as some other observers. The diagnosis of certain affections attended with laryngeal stridor was next discussed, and a further group was suggested of those cases which were attended with febrile sore throat, namely, tonsillitis, diphtheria, and scarlet fever. Points of difference between diphtherial sore

throat and follicular tonsillitis were alluded to. Several axioms were laid down with reference to the diagnosis of diphtheria bacteriologically and clinically, and the value of Neisser's stain in making a positive bacteriological diagnosis of diphtheria was dwelt on. A diagnosis should never be based on a bacteriological examination alone. The differentiation of those diseases which resembled each other by the possession of a diffused erythematous eruption, namely, scarlet fever, measles, and rubella was also considered. Dr. Goodall referred to the time at which the rash in measles appeared, the prodromal rashes of measles and varicella, the remission of symptoms occasionally observed, the diagnostic value of Koplik's spots, the difficulties in diagnosing scarlet fever, and the question of the incubation period in that fever. Dr. Ashby alluded to the occurrence of Koplik's spots and the incubation period in measles, and raised a question as to the spasmodic cough occurring after influenza, the importance of recognizing large glands at the angle of the jaw as a means of diagnosis in diphtheria and scarlet fever, and the characteristic rashes of empyema and pneumonia. Dr. Poynton described some difficult cases that had come under his notice in a public school, and referred to the rash that might be due to iodoform poisoning. Dr. W. J. Tyson referred to the difficulties of diagnosis in obscure cases of so-called "gastric" and typhoid fevers. Dr. Watson Williams showed drawings of Koplik's spots, and gave his experiences in two epidemics of typhoid and measles respectively. Dr. Lovell Drage urged the importance of looking on every sore throat as a possible source of diphtheria, and deprecated the looking at every sore throat as a separate entity. Dr. Mansel Simpson referred to the enlargement of the posterior cervical glands in German measles, and to questions of the heat of the skin and convulsions in early stages of infectious disease.

#### MISCELLANEOUS PAPERS.

**Arresting Acute Endocarditis.**—Dr. R. Caton of Liverpool thought that progress had been made in understanding the endocarditis of acute rheumatism and that it would not be long before the microbial origin of the disease would be absolutely recognized; not so much progress had, however, been made in the treatment of the complaint. He described the results of his treatment in 92 cases of endocarditis arising in the course of acute rheumatism while the patient was actually in the hospital. He insisted on three points. First, absolute rest in bed for at least six weeks on low diet; second, that salicylates did not do so much good to the heart as to the joints, and that such drugs as digitalis, strophanthus, etc., were on the whole injurious. Small blisters applied in succession over the præcordial area were very valuable and he discussed the action, or possible action, of these in exciting resistance to bacterial growth in the tissues of the cardiac valve. Thirdly, he gave sodium

iodide with a view to promote absorption of the effused fibrinous material on the valves. He considered that in many of his cases he had quite prevented the extension of the disease and many were now in good health after considerable periods.

Professor Osler thought that they owed a distinct debt to Dr. Caton for his attempts to combat with what was undoubtedly the most serious part of acute rheumatism. He had followed out the treatment and was sure that it was the correct one, but he regretted to say that he was afraid it could only be of advantage in a few cases. It was very desirable to obtain a subsequent history of the patients at a later stage, as frequently the ultimate damage caused to the valves only became apparent after a considerable interval.

**Gastro Jejunostomy in Ulcer of Stomach and Duodenum and Pyloric Stenosis.**—Dr. G. Barling of Birmingham remarked on the difference in the estimates of mortality from gastric ulcer, and considered 10 per cent. to be approximately accurate. This mortality was due to perforation, hemorrhage, inanition, intercurrent disease, and cancer. A cancerous change he believed to be rare. The diagnosis was often very difficult, and neither the occurrence nor absence of hemorrhage permitted of certainty in forming a positive or negative opinion. The conditions calling for operation appeared to be in the first place hemorrhage; in acute "fulminating" hemorrhage surgical intervention was of little use; in recurrent hemorrhage either gastro-jejunostomy or direct treatment of the ulcer were the methods of choice. The second class in which operation was called for was formed by the cases of long-continued pain, vomiting, loss of weight, and repeated disability for work. Thirdly, there were the cases where gastric dilatation and stasis pointed to pyloric stenosis; and, fourthly, there were those where adhesions were the cause of stenosis or pain. The method of Loreta—pylorodosis—he did not favor, owing to the danger of rupturing the coats if efficient dilatation was carried out. Pyloroplasty was the method of choice in pyloric stenosis, except in cases where the pyloric thickening is very dense and there were many adhesions. It was inapplicable in cases of duodenal ulcer and where an operation was undertaken for the relief of pain and hemorrhage. The simple separation of adhesions was an incomplete procedure. In regard to gastro-jejunostomy he had only performed the anterior operation, and with fair success. He did not favor any method of special approximation. Delay was the chief cause of mortality after operations; the mean mortality of gastro-jejunostomy was about twenty per cent.

**Thyroid and Oophorectomy for Cancer of Breast.**—Dr. G. T. Beatson of Edinburgh said he brought this matter forward to open discussion on the experience gained during the five years since the procedure was described in *The*



*Lancet*, July 11, 1896. He gave an account of a case which he thought exemplified the beneficial effects of the treatment in a remarkable manner, for within a period of six months a large cancerous mamma had entirely atrophied and the extensive glandular enlargement present before the operation had disappeared. He made mention of what Mr. Watson Cheyne had called this "striking" control of the course of carcinoma of the female breast of oophorectomy and thyroid feeding, as furnished by other surgeons. He raised the question of the possible explanation of such results, especially in the light of those cases of apparently spontaneous disappearance or quiescence of mammary carcinoma. Cases where improvement resulted from oophorectomy he thought might bear on the etiology of the disease, since he regarded the apparent controlling influence of the ovaries as inimical to the parasitic theory of the disease. There arose further the big question, Did these results justify the adoption of such treatment as a primary method in the early stages of the disease? In concluding, he affirmed his confidence in the utility of the combined oophorectomy and thyroid feeding in cases where direct operation on the disease was impossible.

**Experimental Glycosuria.**—Dr. F. W. Pavy of London said that glycosuria might be taken as meaning the presence of sugar in the urine in quantity sufficient to be recognizable by the ordinarily employed rough methods of testing. Strictly speaking, however, normal urine contained a certain amount of sugar which escaped being revealed by rough testing but which was susceptible of recognition by more delicate methods of procedure. This was not taken into account in connection with the consideration of glycosuria. Under normal circumstances, although carbohydrate matter might enter largely into the food ingested, no glycosuria was observed. It therefore followed that the system had the power of dealing with it in a manner to obviate its escape in an unutilized state, as sugar, with the urine, and he thought it might be said that the physiologists now for the most part concurred with the view that it was placed in a position for utilization and its escape as sugar thereby was prevented by the assimilative action of protoplasmic matter. Living protoplasm was endowed with the power as a property throughout nature of taking appropriate matter and incorporating it into itself. In this way absorbed alimentary carbohydrate became drawn into the proteid molecules of which protoplasm consisted—for the essential constituent of protoplasm was proteid—and subsequently subjected to the influence of conditions resulting in one way or other in utilization. Assimilation thus stood as a preparatory step to utilization, and when the absorbed carbohydrate of food was fully assimilated and afterwards properly turned to account no glycosuria occurred. Experimentally induced glycosuria carried them over a vast extent of ground. The conditions giving rise to it were

multitudinous and diverse. Here Dr. Pavy gave a list of conditions leading artificially to the production of glycosuria. With such a chaotic list before them it was difficult to see upon what ground they stood with respect to the manner in which the several conditions acted in producing glycosuria. The best way of meeting the difficulty would be, it appeared to him, to look to the sources from which in connection with the operations of life the eliminated sugar could be derived. Thus viewed the origin of the sugar of glycosuria could be shaped for consideration under four heads: (1) It might be derived from unassimilated carbohydrate; (2) it might be derived from stored glycogen abnormally passing into sugar which thereafter found its way into the urine; (3) a third source for the sugar of glycosuria was proteid matter (by an abnormal breaking-down process sugar became cleaved off and subsequently eliminated in the urine); and (4) the question of a fourth source from fat would be discussed. They knew that as a normal occurrence in the vegetable kingdom fat was extensively converted into carbohydrate. It was a matter for consideration if under abnormal conditions fat in the animal kingdom could constitute a source of sugar in connection with glycosuria.

**Fibroids; When and Why Operate.**—Dr. William Duncan opened this discussion. He said: The direct mortality from fibroids was a matter of controversy, but could not be non-existent, as one author had collected eighteen cases in which death was directly due to such tumors. The danger to health, however, was far more important as regarded the general question of operation. Many fibroids should be left alone; others caused hemorrhage—not to be disregarded—pressure on the bladder, rectum, or sacral nerves, or exhibited a rapid growth, or complicated pregnancy, and in such the question of operation immediately arose. The uterus should in the first instance always be dilated and explored; polypi might be removed, or a small submucous tumor without a broad attachment twisted out. He was not in favor, if the submucous tumor were large, of the plan of slitting the capsule, giving ergot, and trusting to the uterus to expel the tumor; nor of *mucellement*, which he considered as dangerous as hysterectomy. Myomectomy was no doubt a good way of dealing with subperitoneal growths, if single and not widely attached. He had found that the Apostoli method neither reduced the size of the tumor nor arrested the hemorrhage. Generally he preferred hysterectomy by the abdomen, and, though panhysterectomy was occasionally necessary, he had up to the present time performed intraperitoneal hysterectomy in 127 cases with 4 deaths, none of which occurred in the last 81 cases. Rapid growth of fibroids implied cystic or mucoid degeneration, and always demanded operation. In case of pregnancy, if the tumor were in the upper uterine segment, or subperitoneal and not impacted in the pelvis, it should be seldom interfered



with; in other cases the question to decide was whether we should empty the uterus, perform hysterectomy immediately, or wait till term and remove the uterus after Cæsarian section. The administration of strychnine for a week before and after operation was a valuable method of avoiding shock; hot water with bicarbonate of soda was of benefit in tympanites; nutrient enemata should be given every four hours. The ovarian and uterine arteries should be tied on both sides before amputation; the cervix should be completely covered by the peritoneal flaps, but the cervix should not be stitched, or the knots should be outside the peritoneum. Mr. Alban Doran pointed out that "retroperitoneal" was a more correct term for the hysterectomy described by Dr. Duncan than "intraperitoneal." Even interstitial fibroids if near the fundus were of little detriment to pregnancy. Not only should any sutures passed through the cervix be kept outside the peritoneum, but all stumps (of the ovarian arteries and tubes if amputated) and ligatures upon them should also be excluded. If there was any doubt as to the position of the uterine arteries it was better not to attempt to tie them till they spouted.

**Maladies of European Children in Hot Climates.**—Dr. A. Crombie said that, speaking generally, it might be said that the sick-rate of European children was lower in India than in the United Kingdom, the reverse to the death-rate. It was therefore obvious that the illnesses of European children were more frequently fatal in India. Were, however, malaria excluded from the diseases in India, the British child in India would have less chances of illness by 10 per cent. than the child at home. From army statistics it was shown that diseases of the alimentary canal, although generally believed to be more prevalent in India than at home, were not really so; it was the gravity of the affections in India that caused alarm. The admission rate for all tuberculous diseases appeared to be higher among European children in India; but the death-rate and case-mortality were both lower. Dr. Edward Henderson said that in Shanghai, with a subtropical climate, children appeared to suffer more during the hot months than adults. Heat not only caused bodily languor and anemia, but in addition made food was less wholesome. Bottle-fed infants were much more apt to suffer than breast-fed infants.

**Disposal of the Wounded in Naval Actions.**—Fleet Surgeon G. Kirker, R.N., opened this subject with a practical paper divided under three heads: (1) The surgeon's station, or the place where the wounded are treated; (2) the time of treatment; (3) the conveyance of the wounded. He said that it had always been the custom to select some well-protected and easily accessible part of the ship for the reception and treatment of the wounded and to convert it before action into a special surgical station. In the old wooden battleship the "cockpit" or after-part of the orlop deck—a place below the water-line and ap-

proached by a wide hatchway—was universally selected as the surgeon's station, and many of the scenes which had occurred there had found their way into history and art. When the iron battleship displaced the wooden one the "orlop deck and cockpit" disappeared and naval surgeons lost their prescriptive station in action. Then the captain and medical officer selected the place they thought most suitable. In this way the location of the surgeon's station was settled and owing to variations of ship-construction it would be so settled until a proper modern operation-room or modern "cockpit" was fitted up. This operation-room should be included in the internal arrangements of every modern battleship and cruiser. It need not be large and it should meet the requirements of aseptic surgery. It need not be particularly easy of access for with a properly devised ambulance sleigh the wounded man could be easily and safely taken down and along all hatchways and passages. During peace important surgical operations could be done in the operating-room and valuable surgical instruments and necessities could be kept there. In time of war the surgical accessories would be protected during action, and after action operations would be done with more chance of success than occurred in bath-rooms or greasy mess-places. The preservation of the lives of the surgeons and the safety of appliances during action would prevent such disasters as occurred on board the Japanese ship *Hiyei* at the battle of Yalu. In this ship a shell entered the wardroom, in which the cockpit was located, killing surgeons, nurses, and wounded, and destroying all surgical appliances. With regard to the time of treatment, it was the rule in time of war to remove the wounded at once to the dressing station. In modern warships it would not be practicable to remove the wounded during action; they would be left to wait for a lull in the fighting. The Japanese found that the surgeons could do no really good work till after the action.

**Skin Diseases and Light Therapy.**—Dr. Malcolm Morris of London opened the discussion on the Finsen light and X-ray methods. He directed attention chiefly to the application of this treatment to lupus. In northern latitudes the sun could not be relied upon altogether, and therefore the electric light must be had recourse to, which in point of fact was therapeutically more active. In respect of current he had found one of about 70 ampères and 60 volts sufficiently strong to produce the effect required in most cases, and it had been thought better to shorten the time of exposure rather than to lessen the intensity of the light. In order to get a powerful light it was most important (1) that the lenses, especially the bottom one, should be clean and bright, and (2) that the water should be clear and free from floating particles. The bottom lens should be thoroughly cleansed and polished every day—a detail which was greatly facilitated by having it made detachable. Up to July, 1901, the total number of cases treated at the establishment under his

direction was 60. In 36 of these the disease was lupus vulgaris, in six lupus erythematosus, in 13 rodent ulcer, in one doubtful rodent ulcer, in two alopecia areata, in one cheloid, and in one epithelioma. Of the cases of lupus vulgaris eight might be claimed as instances of cure, in three the treatment was abandoned on account of failure of health, while in six the result was unsuccessful or unsatisfactory. The remainder were still under treatment. Of the cases of rodent ulcer seven were cured, in two the unsatisfactory state of the patients' health made it impossible to go on with the treatment, and two were still under treatment. Of the cases of lupus erythematosus in two the result was satisfactory, in three the treatment had to be discontinued, and one was still under treatment. Of the cases of keloid and epithelioma nothing definite could yet be said. In the successful lupus cases the number of sittings varied from 8 to 370. They were mostly favorable cases, in which the disease was superficial and of small extent. Brief notes of the cases were then given.

**Rationale.**—The application of the light was followed by an inflammatory reaction consisting in hyperemia and redness, followed by the formation of a bleb which broke and dried in about a week into a thick yellow crust. Healing was complete in ten days or a fortnight. In places where the tissues were loose—for instance, near the eye—there was often great swelling of the neighboring parts. The intensity of the reaction varied in proportion to the intensity of the light and also according to the structural peculiarities of the patient's skin, and especially according to the local conditions produced by the disease. In persons with thin skins the reaction was greater, while it was less marked in coarse thick skins. The reaction came on from five or six to twenty-four hours after the application of the light. It was usually slight at the beginning of the treatment and sometimes became greater as it was continued. Even after prolonged treatment it still showed a tendency to increase rather than to diminish. The Danish physicians said that the treatment was painless, but this was not strictly accurate. There was, indeed, seldom anything that could be called pain at the time the light was applied, though sometimes a feeling of heat was experienced. But the after-smarting was often considerable, and the inflammatory phenomena constituting the reaction were also more or less painful. There was seldom any constitutional disturbance. In the case of ulcerated surfaces there was, of course, no blistering or crusting; a much larger number of consecutive applications could therefore be made without inconvenience to an ulcer than to an area of intact skin. Reaction was manifested by redness and soreness which were sometimes accompanied by some swelling of the surrounding parts and great tenderness on pressure. These effects were seen about the fourth or the fifth day, and if the applications were kept up the skin around the ulcer became inflamed. According to Mr. Morris's experience

the remedial effect of the light rays was directly proportionate to the intensity of the reaction; the production of a considerable reaction should, therefore, always be aimed at. If the disease extended into the deeper layers of the skin, and if there was much scarring, this formed an obstacle to the penetration of the light rays. Another circumstance which made the passage of the rays increasingly difficult when the treatment was prolonged was the pigmentation caused by the frequently repeated applications of light. The amount of pigment naturally present in the skin must also be taken into account. Brunettes were not such good subjects as blondes, and the darker they were the less amenable were they to the light treatment. Hence there were great difficulties in applying it to patients of black or mixed race. When the disease extended deeply and there was great thickening and infiltration of the tissues—*e. g.*, from previous treatment by other methods—it was difficult for the light to penetrate and a large number of exposures were required to make an impression on the mass of diseased tissue. The large extent of the area involved was sometimes a most serious difficulty, as only a small spot could be treated at a time, and thus it was scarcely possible to deal with all the nodules as they developed on the edge of the patch. The only hope of keeping pace with the disease in such cases was to retain the patient under treatment two or three hours daily. This was seldom possible as the patient could not spare the time or tolerate the prolonged immobility required. Moreover, the reactions tended to become so severe that they could not be borne. Cases in which mucous cavities were involved were unfavorable for the light treatment, but in such cases X-rays were useful owing to their power of penetration. If the disease were extensive the treatment must at the best be tedious. It should be applied daily on six days a week if there were nothing—as, for instance, excessive reaction—to make interruption necessary. In cases where there might be a special urgency the treatment might be carried out twice a day without any ill effect. The success of the light treatment depended more on the attendant who had the actual management of the details than on the medical men who had the supervision of the case. Her duties required not only intelligence or skill, but devotion.

#### NEW YORK COUNTY MEDICAL SOCIETY.

*Stated Meeting, Held May 27, 1901.*

The President, George D. Fowler, M.D., in the Chair.

**Blood Alkalescence.**—Dr. Heinrich Stern of New York said that blood alkalescence depends to a large extent on the amount of carbon dioxide in the blood. There is less carbon dioxide exhaled at night, because the breathing is more infrequent and, as a consequence of a certain accumulation of the acid gas in the



blood, the blood itself is less alkaline and the urine more acid. The degree of acidity of the urine in series of individuals does not follow a general law, but is eminently special for each person. It is to a certain extent a function of respiration, because the removal of carbon dioxide depends on respiration. The depth and number of our respirations differ for each individual. The amount of air breathed by persons of the same weight and build may be quite different. The presence of alkaline carbonates in the blood may contribute to lessen the acidity of the urine. The urine can even be rendered alkali by their administration. While the alkalescence of the blood bears a certain relation to urinary acidity, the degree of blood alkalescence is not a very variable quantity. It is not difficult to bring about changes in the degree of acidity of the urine. Only very slight variations, however, can be produced in the degree of blood alkalescence. The alkalinity of the blood seems to be one of the stable factors of the organism whose alteration would lead to serious disturbance of all important functions.

**Personal Experiences.**—Dr. Stern tried a series of experiments and observations on his blood alkalescence and its relation to urinary acidity. He took the same amount of water, about twelve hundred cubic centimeters, every day. Variations in the diet by which food values of from 800 to 1,700 calories of food-stuff were consumed did not produce corresponding variations, nor, in fact, any notable variation at all, in the alkalescence of the blood. It seemed to make no apparent difference whether the food employed was largely proteid or largely carbohydrate in composition. As the result of his experiment Dr. Stern was able to formulate the following influences: (1) As a rule, the higher the acidity of the urine, the lower the alkalescence of the blood, but there is no direct ratio between these two fluids; (2) the influence of ingesta on blood alkalescence is practically *nil*, neither the quantity nor the quality of food materials consumed modifies the alkalinity of the blood in any known direct way; (3) the urinary acidity is modified by the direct transfer of salts which are absorbed in the intestinal tract and are at once eliminated in the urine. Blood alkalescence is modified by the respiratory function.

**Ingesta and Acidity of Urine.**—Dr. L. Fournier Bishop said in discussing the paper that Dr. Stern had shown that the acidity of the urine is independent of the quantity or quality of ingesta. Blood alkalescence and urinary acidity normally follow a physiological cycle, which produces a series of changes not unlike the temperature curve of the day in normal individuals. While the reaction of the blood is due to a very complex set of influences, blood alkalescence is extremely uniform, and this uniformity seems necessary in order to preserve health. The hydrochloric acid that is so

indispensable to digestion is somehow derived from the blood. Its presence in the stomach and the influences that lead to its formation may be the basis for the changes that cause diminished acidity of the urine after meals. At this time the kidneys have, as it were, less acid material to excrete because a certain amount of the acid present in the body has been secreted into the intestinal tract from the stomach-walls. Speculatively we have been accustomed to think of blood alkalinity as a quality that could be varied almost at will. Experiment shows its permanence and adds a new item to our knowledge of stable human metabolism.

**Pregnancy After Myomectomy.**—Dr. James N. West read a paper on this subject, advocating conservatism in gynecology. He pointed out the fact that in a great many cases myomata can be removed, leaving the uterus to perform its maternal function afterward. With regard to the treatment of myomata, there has been a great variety of opinions. A cycle of teachings from overconservatism, embracing treatment by drugs and by electricity, to needless mutilation involving the radical removal of the uterus whenever a myoma was present, has been passed through. Between these extremes, both worthy of condemnation, there is a middle course to which conservative gynecologists are rapidly being converted.

**American Experiences.**—In 1884 Emmet reported his own experience with myomectomy. He had performed five operations, but all of his patients succumbed. He collected over three hundred cases from the literature and showed that, even in the best hands, the mortality of radical treatment of myomata was at least 47 per cent. He warned the general practitioner that he must not expect to be even as successful as this, and must not hope to save even one out of every two patients. As a marked contrast to this opinion, Dr. West quoted the declaration of Kelly of Johns Hopkins, made last year, that myomectomy may be performed without any danger, and that the uterus may be left to perform its function as before. Professor Emmet has come to have the same opinion as the result of his own further experience in the treatment of these tumors.

**Pregnancy and Myomectomy.**—In 1890 Professor Krolein removed a myomatous tumor weighing eight pounds from a young woman, who was at the time engaged to be married. Krolein thought that in removing the tumor he had penetrated the uterine cavity. What he thought to be the uterine cavity, however, proved to be only a lymph space in the uterine tissue. Six months afterward the patient married and became pregnant after five months. Her pregnancy ran a normal course and labor came on in due time. The expulsive forces of the uterus proved insufficient and forceps had to be used, but a healthy living child was de-



livered, and there was normal delivery of the placenta, without unusual incidents. The rest of the puerperium proved normal. Quite a number of cases resembling Kronlein's have been reported to date. In Dr. West's own case nine incisions were made into the uterine muscle in order to remove fourteen myomatous tumors, and yet the uterus at labor proved to have perfectly normal expulsive force.

**Types of Tumors.**—When the myomatous tumors are encapsulated and form a distinct portion of tissue by themselves, they should be enucleated. When, however, the myomata are not definitely limited, but there is myomatous degeneration of large portions of the uterine muscle, the time for the removal should be put off as long as possible, using all ordinary methods of treatment. When symptoms become so severe that removal is absolutely indicated, then the uterus should be amputated, leaving the cervix and the ovaries untouched, if they are healthy, in all women who have not yet reached the menopause. These methods of treatment will save much suffering and will preserve internal functions in many cases, while in others it will at least not cause precocious menopause with its many annoying symptoms.

**Accurate Diagnosis.**—Dr. Bache McE. Emmet said that myomectomy demands above all things accurate diagnosis. Theoretically, it is easy to remove an encapsulated myomatous tumor, but it is not always so easy to determine exactly the pathological condition from which the woman is suffering. When there is extensive bleeding the cause should be determined. For this the important diagnostic point is the dilatation of the cervix by means of sponge-tents. The removal of myomata will not, however, always insure subsequent pregnancy. Often with fibroids there is adnexal disease present. Not infrequently also the tubes become affected as the result of the congestion in the genital tract.

**Danger of Operation.**—The danger of myomectomy is not as small as is sometimes asserted. The risk of secondary hemorrhage still remains and may prove fatal even under good conditions. In addition to this patients from whom myomata are removed sometimes suffer from edematous conditions that may lead to serious complications. There is in all cases a certain amount of danger that tumors will relapse. Not that the old tumors grow again, but where there has been adventitious material that has caused the development of one or more tumors there may prove to be embryonic collections of tissue that will develop further tumors after primary removal. Patients should not be given too much assurance that their condition will be absolutely cured by operation.

**Selection of Cases.**—Dr. W. Gill Wylie said that if the cases could be selected theoretically perfect results could be obtained. When one

or more encapsulated tumors exist and the rest of the genital tract is absolutely healthy, there is no difficulty at all in removing the tumors. Usually, however, fibroid tumors are complicated by other serious conditions. As a rule, they give practically no symptoms of their presence until complications set in. Very few cases are suitable for myomectomy that give enough symptoms to make the patient willing to have it done.

**Methods of Treatment.**—In young women, as a rule, curetting will relieve a tendency to sterility quite as often as will myomectomy. The tumor should be removed if it threatens to be a source of danger, or productive of interference with the normal course of labor. Small myomata, however, may exist in the uterine wall and fail to enlarge during pregnancy. The pregnancy may proceed to a normal termination without the tumors interfering in the slightest bit with either its progress or culmination. An encapsulated myomatous tumor interferes no more with the uterine muscle than does the space produced by its removal.

**Malignant Degeneration.**—There is a certain amount of danger of fibroid tumors of the uterus becoming malignant. This danger is much more than is usually supposed, and many cancers in the body of the uterus have their origin in an old fibroid tumor. If fibroid tumors show any signs of activity in patients over forty, the whole uterus should be removed in order to avoid the danger of possible malignant degeneration.

**Contra-Indications to Myomectomy.**—Whenever there is chronic endometritis, especially if there is good reason to think it of gonorrheal origin, simple myomectomy should not be done, but the entire uterus should be removed. Gonorrheal endometritis is extremely obstinate in its course and practically resists all treatment. It may lead to peritonitis and its presence will keep up most of the symptoms from which the woman has been suffering before. There is a tradition that fibroid tumors will decrease after the menopause. It is always illusory to wait for this period in the hope that the tumors will decrease in size. The period of the menopause is an extremely dangerous one as regards cancer. There is an unsettled state of the involuting uterine tissues which easily predisposes them to malignant degeneration. The presence of a fibroid may easily prove the irritative stimulus that gives rise to malignant tumor. Fibroids and cancer it must be remembered often go together.

**Senile Menstruation.**—As a rule, if women menstruate after fifty, the suspicion of the presence of a fibroid must be aroused. Sometimes this long persistence of menstruation is heredity. In certain families the persistence of menstruation for years after the usual climacteric is a well-known family trait. The recur-

rence of menstruation, however, after the usual cessation of the menopause has set in is pathognomonic of cancer in most cases and must, of course, be specially noted.

**Comparative Radical Operation.**—Dr. A. Palmer Dudley said that simple myomectomy is really a more radical operation than hysterectomy in the sense that it sometimes involves more danger and requires more careful technic. It is a serious thing to deliberately make a wound in a muscle richly supplied with blood and then, after simple suturing, drop this back into the abdominal cavity without instituting drainage. Recent experience, however, has shown that myomectomy can be performed without any added risk and to the evident advantage of the patient. Dr. Dudley's own experience in some few hundred cases is most encouraging and shows how much can be done of operative work on the uterus and yet allow the patient to retain all her functional capacity.

**Contra-Indications to Myomectomy.**—In Dr. Dudley's opinion myomectomy should not be performed in patients who are approaching the menopause. That is to say, as a rule, who are much over forty. It should not be done either in patients in whom there is a history of chronic gonorrhea. When gonorrheal endometritis with corresponding infection of the tubes and perhaps, also, of the ovaries, has developed it is almost futile to hope for any amelioration of symptoms except by radical removal of the uterus with the adnexa. Very often the symptoms will be found to be due to chronic gonorrheal infection rather than to the fibromyomata, in which case, needless to say, the removal of the tumors will not produce the promised amelioration of symptoms. Another contra-indication is the existence of recent syphilis. Here there is question whether the relief of the sterility and resulting conception will really be of benefit to the patient. The children are apt to suffer from the disease.

**Social Status of Patients.**—In the better class of patients, who are able to take every means to alleviate their symptoms and who may, if necessary, rest for long periods, the removal of myoma should not be suggested as early as in patients of the poorer classes, who have to work hard for their living, but to whom valetudinarianism is an impossibility. Myomectomy should not be done when, at the time of the operation, the uterus is found scarred and deformed as the result of the removal of other tumors. Hysterectomy is then the indication. When tumors are large, they may be taken away piecemeal and the uterus will gradually contract and prevent bleeding and also fill up the space that the tumor has occupied.

**Operative Technic.**—If in these operations the tubes are found to be patent, or whenever there is no sure indication of their closure, the surgeon has no right to remove them. As a rule, when fibroids are removed, drain-

age through the uterus by means of gauze is indicated. If it is feared that there will be considerable oozing, drainage may be made through Douglas's pouch. It is sometimes forgotten how easily this may be done without any subsequent inconvenience.

**Operative Enthusiasm.**—Dr. West in closing the discussion said that he pleads guilty of enthusiasm in the matter of conservative operation upon the adnexa of women. Some years ago it was not an unusual thing to see exhibited a perfectly healthy uterus that had been removed because of a small polypus that might easily have been taken out without disturbing the uterus itself. It is true that certain symptoms due to adnexal implication are usually noted in cases of myomata. These will, however, commonly disappear and the patient be restored to perfect health when the myoma is removed.

**Myomata and Malignancy.**—It has now grown to be an almost uniform belief that myomata do not develop into cancer, nor degenerate into any form of malignancy. The number of tumors in the case seems to mean nothing. In Dr. West's case sixteen tumors were removed, leaving nine scars, and yet labor was accomplished with almost absolute normality.

**Vaginal Myomectomy.**—Dr. Paul F. Mundé reported a case in which thirty-four myomata were removed by the vaginal route. In this case pregnancy followed myomectomy and the labor proved practically normal. It is probable that many of the operations for myomectomy, which are now done by the abdominal route, could be performed with just as much satisfaction through the vagina and without the added danger of certain post-operative inconveniences that are apt to follow the abdominal operation.

**Hospital and Dispensary Mismanagement.**—Dr. Thomas J. Hillis made some remarks additional to previous papers on the subject of the mismanagement of hospitals and dispensaries. This paper will appear in a subsequent issue of the MEDICAL NEWS.

**Sickroom Bathtub.**—Dr. Bellamy presented a model of a bathtub that can be used very handily in a sickroom in the treatment of such diseases as typhoid fever, in which full baths are required. There is no doubt that the bath treatment is essential in many cases of typhoid. Stewart of Montreal declares that many hemorrhages have their origin in the bathtub and that they are really due to trauma from heroic handling. The tension on the abdominal muscles during the time of lifting in and out of the tub causes the rupture of small arteries at the basis of the typhoid ulcers. Rest is important and this tub provides for it. The apparatus is on rubber wheels and may be brought to the side of the bed and an inclined plane is provided down, or up, which the patient may be gently moved to the tub. He rests here on a

perforated false bottom which can be raised to the top of the tub and then slowly lowered after the patient has been placed in it. The raising out of the tub is accomplished by means of this same false bottom.

**Points in Bathing Technic.**—The patients should not be plunged at once into water of uncomfortably low temperature. The first bath in typhoid should be given at a temperature not much below 100° F., the water being allowed to cool off gradually while the patient is in the tub. Instead of the shock that so often terrorizes patients, as the result of the first bath, there should be a positive feeling of comfort. After a time patients realize how much their feelings are improved by the bath and then they stand the preliminary shock of colder water much better.

**Comfort of Typhoid Patients.**—Attached to the bathing apparatus suggested by Dr. Bellamy, there is a force pump for bringing water to, or forcing it out, of the bathtub, in cases where the supply of water is at some little distance from the sickroom. It is important that a typhoid patient should have a comfortable bed. The more restful a patient is, the less danger of complications. There should therefore be either two mattresses or two beds for his use. He may easily be transferred from one bed to another, just after his bath, or during the bath the second mattress can be substituted for the first. The successful treatment of typhoid depends not on any special system of drug treatment, but on attention to minute details.

## BOOK REVIEWS.

**THE MUSHROOM BOOK.** A Popular Guide to the Identification and Study of Our Commoner Fungi, with Special Emphasis on the Edible Varieties." By NINA L. MARSHALL. With many Illustrations in Color and Black and White. Photographed from Nature by J. A. and H. C. Anderson. Doubleday, Page & Co., New York.

THE fascinating glimpse that Mr. William Hamilton Gibson gave his readers, of the World of the Woods, reached its height when he brought out his Mushroom Book. It represented literally but a taste of what the woods would yield to the hungry, and of what literature would bring forth to satisfy inquiring minds. Since then there have been a number of mushroom books, some thoroughly scientific and satisfactory; others not so; but Doubleday, Page & Co. now bring out *the* Mushroom Book, with the most beautiful series of photographs taken from Nature in color and in black and white that have ever been published.

A very clear and simple text has been written around them, in which the technical difficulties of the fungus "lingo" have been reduced to plain, every-day words, so that anybody might be able to determine a common specimen, and get a very

comprehensive knowledge of the most important families.

A certain familiarity with the fungi, especially with some of the deadly species that resemble the edible fungi, is becoming absolutely indispensable to physicians. People flock to the mountains and country side armed with the newest fad for recreation, of which mushroom hunting, with gustatory bent is one, and in spite of careful descriptions and plentiful illustrations the little knowledge often proves a dangerous thing. We therefore would advise physicians who are likely to practice in the vicinity of enthusiasts to get this last of the Doubleday series of Nature buds, and learn to distinguish good from evil in the mushroom world.

**A SYSTEM OF PRACTICAL THERAPEUTICS.** Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Second Edition. Vol. III. Lea Brothers & Co., Philadelphia and New York.

THE practical character of this system is nowhere more exemplified than in this third volume. It deals almost exclusively with surgical therapy—Anesthesia and Anesthetics, Surgical Technique, Fractures and Dislocations, Minor Surgery and Bandaging, Cerebral Concussion and Shock, Pleural Effusion and Empyema, Gangrene of the Lung, Peritonitis, Appendicitis, Abscess, Obstruction, Diseases of Rectum and Anus, Therapy of Genito-Urinary Tract in Male and Female, Therapy of Childbearing, Diseases of Eye, Ear, Nose and Throat from the Standpoint of the General Practitioner.

A glance at this condensed summary of the contents shows the every-day utility of the work and when it is added that each subject is considered by men of established reputations, who have had in mind the needs of the active worker in medicine, the practical character of the system needs no further comment.

**MOSQUITOES.** How They Live; How They Carry Disease; How They Are Classified; How They May Be Destroyed. By L. O. HOWARD, PH.D., Department of Agriculture. McClure, Phillips & Co., New York.

MOSQUITOES are in the air at the present time—both in the ambient and literary atmosphere. To bring them to earth, however, and to know their ways and how they may be rendered less obnoxious is the object of this admirable volume.

The author, as head of the Bureau of Entomology, is thoroughly *en rapport* with his subject and has breathed into its pages throughout the living breath of actual contact with the "critters." Most physicians know a few of the species to their discomfort; we recommend this work to those who would know more about them, especially those who would learn the ways of exterminating the pests.